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A study of the effectiveness of interprofessional working for community-dwelling older people

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Glossary of terms/abbreviations

ADASS	Association of Directors of Adult Social Services
ADL	Activities in Daily Living
CASSR	Councils with Adult Social Services Responsibilities
CE	Consensus Event
CM	Community matron
COPD	Chronic obstructive pulmonary disease
CNS	Clinical nurse specialist
DH	Department of Health
DN	District nurse
EDRS	Early Discharge and Rehabilitation Service
ER	Emergency Room
GCM	Geriatric Case Management
GP	General Practitioner
GRACE	Geriatric Resources for Assessment and Care for Elders
HMO	Health Maintenance Organisation
IG	Intervention Group
IPE	Interprofessional education
IPW	Interprofessional working
JSNA	Joint Strategic Needs Assessments
LA	Local Authority
LoS	Length of Stay
LTC	Long term conditions
MDT	Multi-disciplinary team
NH	Nursing Home
NSF	National service framework
PACE	Program for All-Inclusive Care of the Elderly
PCT	Primary Care Trust
PIRG	Public Involvement in Research Group
QoL	Quality of Life

RCT	Randomized Controlled Trial
SHA	Strategic Health Authority
SIPA	System of Integrated Care for Older People
SR	Survey Review
SWING	South Winnipeg Integrated programme
WPP	Wisconsin Partnership Program

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CG and VMD, designed led, and were involved in all stages of the study. JM SI HG provided expert advice and support throughout the study, and contributed to the final analysis and report writing. HG led the economic analysis. DT took lead responsibility for the systematic review. FS and LP were involved in study management and data collection in Phase One and the early part of Phase Two respectively. DS was involved in data collection and data entry in both phases. MH and AN undertook data collection, inputting and analysis in Phase Two and MH co-ordinated data management for the whole study.

There have been two publications from the TOPIC study

Poltawski L, Goodman C, Iliffe S, Manthorpe J, Gage H, Shah D and Drennan V. 2011Frailty scales--their potential in interprofessional working with older people: a discussion paper. J Interprof Care. Jul;25(4):280-6.

Goodman C, Drennan V, Scheibl F, Shah D, Manthorpe J, Gage H and Iliffe S. (2011) Models of Interprofessional Working for older people living at home: a survey and review of the local strategies of English health and social care statutory organisations. BMC Health Services Research. 2011 11(1):1472-6963

Key Messages

- The numbers of older people with multiple co-morbidities, living at home, are set to increase and present challenges to health and social care delivery systems.
- Models of long-term chronic disease management emphasise interprofessional working, with pan-agency collaborations that promote common assessment, care planning, and integrated data systems. There has been little attention paid to the best configurations in interprofessional working which meet this population of patients' or service users' defined outcomes of effectiveness in care and treatment or how effectiveness is defined over sustained periods of time.
- Older people and their carers define effectiveness in interprofessional working through *the processes* of care and service delivery as much as the ultimate agreed outcomes. Process outcomes include factors such as timeliness, completion of actions as promised and perceived expertise in tasks and also the quality of relationships. These can be compromised by time limited interventions.
- Older people and their carers emphasise that it is at times of transition, at points of escalating ill health or crisis that their need for effective interprofessional working is particularly significant.
- Three models of interprofessional working are most evident for this population: an integrated team model, a case manager model and a collaboration model.
- We were not able to identify that one model was more effective than another for particular groups of older people but did demonstrate that the older people's access to services were shaped by the networks these models worked within.
- There were, irrespective of context, key attributes or mechanisms that changed the older person's experience of interprofessional working. Effectiveness was perceived as closely entwined with processes of care that promoted:
    - Continuity of care through a recognised or named key person or case manager from health or social care,
    - Relationship styles of working that supported co-production with the older person,
    - Ongoing shared review,

    - Functioning ties or links across a wider primary care service network,
    - Evidence that the system , at times of escalating problems or crisis, could respond.

- Effective interprofessional working for community-dwelling older people with complex, multiple and ongoing needs is more likely to occur when three key features are present:

    1. A functioning link with wider primary care services,
    2. A system of communication and evaluation that allows review and input from the older person and family carers,
    3. The presence of a recognised and named person in a key worker type role.

- Key issues identified in this study that require consideration by commissioners and managers in planning and developing services are:
- Mechanisms that preserve and foster network, relationship based service delivery which older people identify as of high importance in effectiveness.
- Systems that build on the universality and continuity provided by general practice, noting this is recognised as such by older people.
- Systems for recognising key workers (by whatever name) and making these known to the older person and their family carers, particularly at points of transition, escalating ill health or crisis in health.
- Evaluation of service delivery from the older person perspective that links process outcomes with overall outcomes over time.
- Mechanisms for assisting professionals and service providers that build and maintain networks of relationships, however weak, that are primarily horizontal (i.e. in a geographical area across organisational boundaries) and reflect the perspective of the older person.

Executive Summary

Background

One of the challenges facing the National Health Service (NHS), is the growing number (though diminishing proportion) of older dependent people who have multiple health and social care problems and are perceived to be at high risk of unplanned hospital admission . This is a group that rely on a mix of unpaid support and professionals from statutory, charitable and independent providers. Models of long-term chronic disease management for these older people and their carers emphasise interprofessional working, with pan-agency collaborations that promote common assessment and care planning, and ideally integrated data systems. There is an extensive literature on the barriers and facilitators to interprofessional working between different professionals and organisations. Less well understood is the impact of interprofessional working at the patient or service-user level, and which 'bundle of strategies' achieve the best outcomes. There is little understanding of whether some configurations of health and social care professionals (working with unpaid carers and independent providers) are better suited than others to address patient or service-user-defined outcomes of effectiveness. At a time of financial austerity and changing commissioning frameworks for public spending, these questions increase in significance.

This report presents the findings from a three year study that investigated the effectiveness of different approaches or models of interprofessional working from the perspective of the older person and their family carers.

Aims

This study examined the effectiveness of interprofessional working in primary and community care for older people with multiple health and social care needs. It aimed to:

- Identify appropriate measures of effectiveness from user, professional and organisational perspectives for interprofessional working for community-dwelling older people with multiple health and social care needs.
- To investigate the extent to which contextual factors, such as geography, multiplicity of service providers, resources, presence of shared infrastructures, types of service commissioning (including

direct payments to the user) and quality scrutiny, and professional roles identities, influence the sustainability and effectiveness of interprofessional working and patient, carer and professional outcomes.

Methods

The three year study drew on the principles of realist evaluation and was organised in two phases. Phase One comprised four interrelated elements: 1) A review of research of the effectiveness of interprofessional working for older people; 2) Exploratory interviews with older people, carers, health and social care professionals and third sector providers; 3) A national survey of how interprofessional working for older people is structured, commissioned, financed and evaluated across England complemented by a review of local strategy documents for older people services; and 4) A consensus event with older people, their carers and service user representatives that reviewed Phase One findings and agreed how effectiveness in interprofessional working might be defined from the older person's perspective. The findings from Phase One informed the choice of case study sites, models of interprofessional working and selection of outcome measures.

Phase Two involved case studies of three models of interprofessional working for community-dwelling older people that tracked the care received over nine months in six geographically and contextually different Local Authority and health care provider sites in the East and South of England. Analysis focused on the older person's experience of interprofessional working and comparison of the process of care, resource use and outcomes of the three interprofessional models studied.

Results

The systematic review, interviews and survey of providers identified that the mechanisms and delivery of interprofessional working for older people are not well documented in the research literature or clearly described at service delivery and receipt levels. From a provider perspective, clarity of purpose was most closely linked to time-limited interprofessional working-based interventions. There was also evidence of 'within' or intra-organisation understanding of the language and culture of interprofessional working and the infrastructure that influenced how professionals work together. Three main models of interprofessional working were identified as: an integrated team model, a case manager model and a collaboration model.

Older people and their representatives were able to differentiate between approaches to interprofessional working and discuss its significance of at key points of transition and crisis in their experiences. The significance of the *process* of care and service delivery key points of transition, crisis or exacerbation featured as much as the ultimate agreed outcomes. This inextricable link between the process of interprofessional working and how effectiveness was defined was tested further in Phase Two.

The care, support and treatment of 62 older people living in six diverse Primary Care Trust areas who were in receipt of the three discrete models of interprofessional working was tracked for nine months. The models of were: (a) integrated team, (b) case management and (c) collaboration. 162 interviews were completed with older people and their representatives. In addition, 75 interviews were conducted with 33 professionals at different time points exploring both the context, including the impact of organisational change, and also, with the person's permission, the services and interprofessional working provided to individuals in the study.

Many older people judged outcomes of interprofessional working in terms of both the processes e.g. timeliness, completion of actions as promised and perceived expertise in tasks and also the quality of relationships. The study did not identify one model of interprofessional working as more effective than another for particular groups of older people but did demonstrate that the older people's access to services were shaped by the networks of care the models of interprofessional working worked within. The collaboration and case management models were more likely to support networks of professionals linked to primary care, working either through the GP or through a named professional and recognised by the service-user as taking on that that role. Integrated and case management models were more likely to use structured methods of communication and to have shared goals and objectives that provided clarity about the roles and purpose of different professionals. Although time limited services and the presence of a case manager could reduce access to wider services.

There were, irrespective of context, key attributes or mechanisms that changed the older person's experience of interprofessional working. Effective interprofessional working was perceived as closely entwined with processes of care that promoted:

- continuity of care through a recognised key worker or case manager from health or social care,

- relationship styles of working that supported co-production with the older person,
- ongoing shared review,
- functioning ties or links across a wider primary care service network,
- Evidence that the system at times of crisis, could respond.

For those whose health was unlikely to improve, an alignment between different professionals as to the goals of their intervention at times of transition or episodes of acute illness was very important.

The degree to which professionals had a broad network of links into and across other organisations was seen to be important, not only to their ability to deliver on the key attributes of interprofessional working, but also to enable access for the older people and their carers to the full spectrum of relevant services and support.

Conclusions and Implications

Effective interprofessional working for community-dwelling older people with complex, multiple and ongoing needs is more likely to occur when three key features are present: 1) a functioning link with wider primary care services, 2) a system of communication and evaluation that allows review and input from the older person and family carers, and 3) the presence of a recognised key worker.

From an older person perspective, effective services were based on interprofessional interventions that supported continuity of care, and maintained a sense of security and links to wider systems of care and treatment at points of crisis or transition. The ability of individual professionals to be effective contributors to interprofessional working and enable access to all appropriate services and support was influenced by the networks they participated in or were structured into.

The landscape of providing organisations is set to change in England; with more diversity and a greater mixed-economy of provision. This is demonstrated by the emergence of new commissioning and scrutiny fora, Clinical Commissioning Groups, Health and Wellbeing Boards, and the introduction of personal budgets for purchasing social and health care with public monies. The evidence from this study will have salience for managers, commissioners and scrutiny bodies in considering how best to provide services for older people with multiple and ongoing health and social care needs. Key issues identified in this study that require consideration are:

- Mechanisms to preserve and foster relational based service delivery which older people identify as of high importance in effectiveness.
- Systems that build on the universality and continuity provided by general practice, noting this is recognised as such by older people.
- Systems for recognising key workers (by whatever name) and making these known to the older person and their family carers, particularly at points of transition or crisis in health.
- Evaluation of service delivery from the older person perspective that links process outcomes with overall outcomes.
- Mechanisms for assisting professionals and service providers that build and maintain networks of relationships, however weak, that are primarily horizontal (i.e. in a geographical area across organisational boundaries) and reflect the perspective of the older person.

The most effective way to support networks of practice for this population that capture both horizontal and vertical (to the acute sector) relationships require further exploration.

The Report

1 Introduction and Background

1.1 Background

Internationally, rising older populations are predicted with some concern, however older adults are not homogenous by their chronology (1, 2). Over 50% of people with chronic conditions have more than one, and the prevalence of multiple conditions rises with age and level of deprivation (3, 4). It is the intersection of age and multiple chronic conditions that present the greatest challenge for health and care professionals and planners to provide appropriate, effective and acceptable services. The challenge faced by health and social care services in the developed world is to create integrated systems that address the needs of older people who have multiple health and social care needs (5, 6).

Models of long-term or chronic disease management for older people emphasise the need for multi-professional, pan-agency collaborative working that promotes common assessment and care planning, and ideally integrated data systems (7). At an organisational level this may be achieved through a range of methods, including joint funding, networks of care, co-location or focusing on a single problem or issue. Less is known of the advantages of one approach over another. Nor do we know whether at a service level these models - with their different configurations of health and social care professionals – have different impacts on outcomes that are seen as important to the user (8), (9).

In England the policy imperative to support people to remain in their own homes and reduce unplanned and lengthy hospital admissions has emphasised the importance of integrated working between primary and social care. At organisational and service-delivery levels there have been changes in commissioning, the workforce and how different services are organised (10, 11). Support has also been provided for the development and use of a range of tools that can facilitate joint working, such as single assessment, integrated care pathways, common protocols and shared electronic records (12, 13). At the same time there is greater emphasis on personalisation to support older adults (and other groups) to have greater independence and control of their support (11, 14). This approach, through direct payments and personal budgets, will demand new ways of working between established professional groups and people directly employed by older people (14).

1.2 Definitions and knowledge of interprofessional working

There is no consensus on how to operationalise the term interprofessional working (IPW). It is often used interchangeably with terms such as multi disciplinary team, collaboration and partnership working. Shaw *et al*. (15) describe how policy initiatives that aimed to improve relationships between care professionals referred to 'co-ordinated care' in the 1960s, 'inter-agency working' in the 1980s and since 2000, 'interprofessional working'. IPW is often used in the research and theoretical literature as one way of describing integrated working within and across organisations at the Service user level of service delivery (16, 17). Primary care can be defined residually as all NHS services provided out with hospitals. We used a broad and inclusive description of adult social care, encompassing the wide range of care and support that is available to and used by adults; the diversity of services and service providers of adult social care; and care and support provided through informal care, self care and self-funded care. (Source NIHR SSCR) The boundaries between publicly funded social care and care paid for by users or their families provided by private or voluntary sectors are sometimes blurred. In primary and social care the range of types of IPW include:

a) Different types of professionals from different organisations that come together to achieve a specific outcome for an individual,

b) Multi-professional teams who are established for a specific function, e.g. rehabilitation,

c) Individual practitioners who oscillate between uni-professional and team working according to context, intensity of need, workforce availability and pragmatism (18), (19).

IPW is therefore one of a range of integrative processes that concerns the behaviour of different professionals within and across organisations. There is a strong theoretical understanding of the characteristics, pre-requisites, facilitators and barriers for effective IPW in health and social care for older people, and of how these are shaped by power relationships and the wider policy environment (20), (21),(22), (18). These include: clarity of objectives, shared values and culture, transparency of roles particularly the team leader/co-ordinator role, explicit and frequent communication mechanisms between professional and service users, interaction and trust (23). There is also a literature on different conceptual models of IPW and tools to aid its evaluation and review (e.g. [23, 24]), and on how different educational initiatives can sustain it (24).

However, despite longstanding UK evidence on the challenges presented to IPW outside the hospital setting,(25-30) there is relatively little work linking final clinical or care outcomes and actual benefits to patients or Service users as recipients of different types or models of IPW (31). While public policy has moved to emphasise mechanisms that allow adults more choice and control over the services and support they need(14), older people consistently highlight how difficult it is for them to be involved in decision-making about the arrangements of health and social care services that best address their multiple needs (8, 32). Evidence from studies of the experiences of older people with multiple health and social care problems regarding the effectiveness, benefits and costs of service integration is mixed (33-39). Little is known about how the cumulative impact and effectiveness of professional behaviour and teamwork are evaluated from the perspective of older users and their carers (40). There also appears to be little evidence regarding how different models of IPW become embedded within organisations, and which Service user and organisational outcomes, if any, are sustained over time.

1.3 Study Aims

This study examines the effectiveness of interprofessional working in primary and community-based social care for older people with multiple health and social care needs. This study aimed to:

a) identify appropriate measures of effectiveness from user, professional and organisational perspectives for IPW for community-dwelling older people with multiple health and social care needs.

b) investigate the extent to which contextual factors, such as geography, multiplicity of service providers, resources, presence of shared infrastructures, types of service commissioning (including direct payments to the user) and quality scrutiny, and professional roles and identities, influence the sustainability and effectiveness of IPW and Service user, carer and professional outcomes.

The research questions were:

Question 1. What is the evidence of effectiveness for older people's health and wellbeing in different models of interprofessional and interagency working in primary health and social care?

Question 2. How do community-dwelling older people with multiple needs, and their carers, perceive and define effective IPW across health and social care services; and can this inform the development of user-defined outcome measures of effectiveness for IPW in primary and social care?

Question 3. To what extent do different structural models (with attendant variety in supporting infrastructures) of interprofessional working, for community-dwelling older people with multiple conditions, impact on the processes, costs, staff morale and user outcomes?

Question 4. What is the impact of different types of commissioning, incentives and quality scrutiny on IPW and its effectiveness for community-dwelling older people with multiple needs and their carers?

The study design used a realist evaluation approach drawing on mixed investigative methods in two phases. This report follows that format: a description of the methods used is presented first; this is followed by chapters presenting and discussing the findings of each study phase in turn; the report concludes with a chapter synthesising the evidence and making recommendations.

1.4 Public and patient involvement

The involvement of the Public Involvement in Research Group (PIRG) at University of Hertfordshire was integral from conception of the study and throughout. Members of the PIRG were members of the study advisory group, and were influential in the development of the study tools, particularly for the case study phase A Project Advisory Group was established which also had representation from NHS and social care policy makers and practitioners from primary and social care. It met on a regular basis throughout the life of the study and offered friendly but critical advice on all aspects. Phase one of the study culminated in a Consensus Event in which service users, carers and patient representative groups were involved. These various elements ensured public and patient involvement in all significant aspects of the study content and process.

2 Study Design

This chapter describes the overall design of this investigative programme, briefly introduces the individual studies that it comprised, and shows how they interlinked (Figure 1). The studies were related but distinct, and each had its own methodology. Therefore, for clarity, detailed descriptions of the methods used in each are provided in subsequent chapters.

For the purposes of the study as a whole, interprofessional working (IPW) was operationalised as having one or more of the following features:

- A shared care plan that involved joint decision making by an interprofessional /multi disciplinary team
- A shared protocol or documents (e.g. care pathways) that involved joint input from an interprofessional /multi disciplinary team
- Face-to-face team meetings or routine team communications about individuals' care plans.

The word 'team' is interpreted loosely, as a group of professionals who work together. The definition of IPW we used is very close to one of interprofessional practice subsequently published by Reeves *et al*. (41) as activities or procedures incorporated into regular practice to improve collaboration and the quality of care. Models of IPW tested in this investigation were developed iteratively through several of the studies, and this Chapter ends with a description of this process.

2.1 Study Design

The diversity of contextual influences and approaches to IPW has been described in chapter 1. In order to investigate this diversity, the study design drew on the principles of realistic evaluation and realist synthesis (42), (43). This is a research approach that considers multiple perspectives, and can make explicit the outcomes that are context-dependent and those that transcend a range of settings and/ or models of care.

The study questions were investigated using mixed methods in two phases that included elements at multiple levels, including the individual experiences of Service users.

Phase One included 3 elements:

1. Systematic review of research on effectiveness of IPW for community-dwelling older people (Chapter 3)

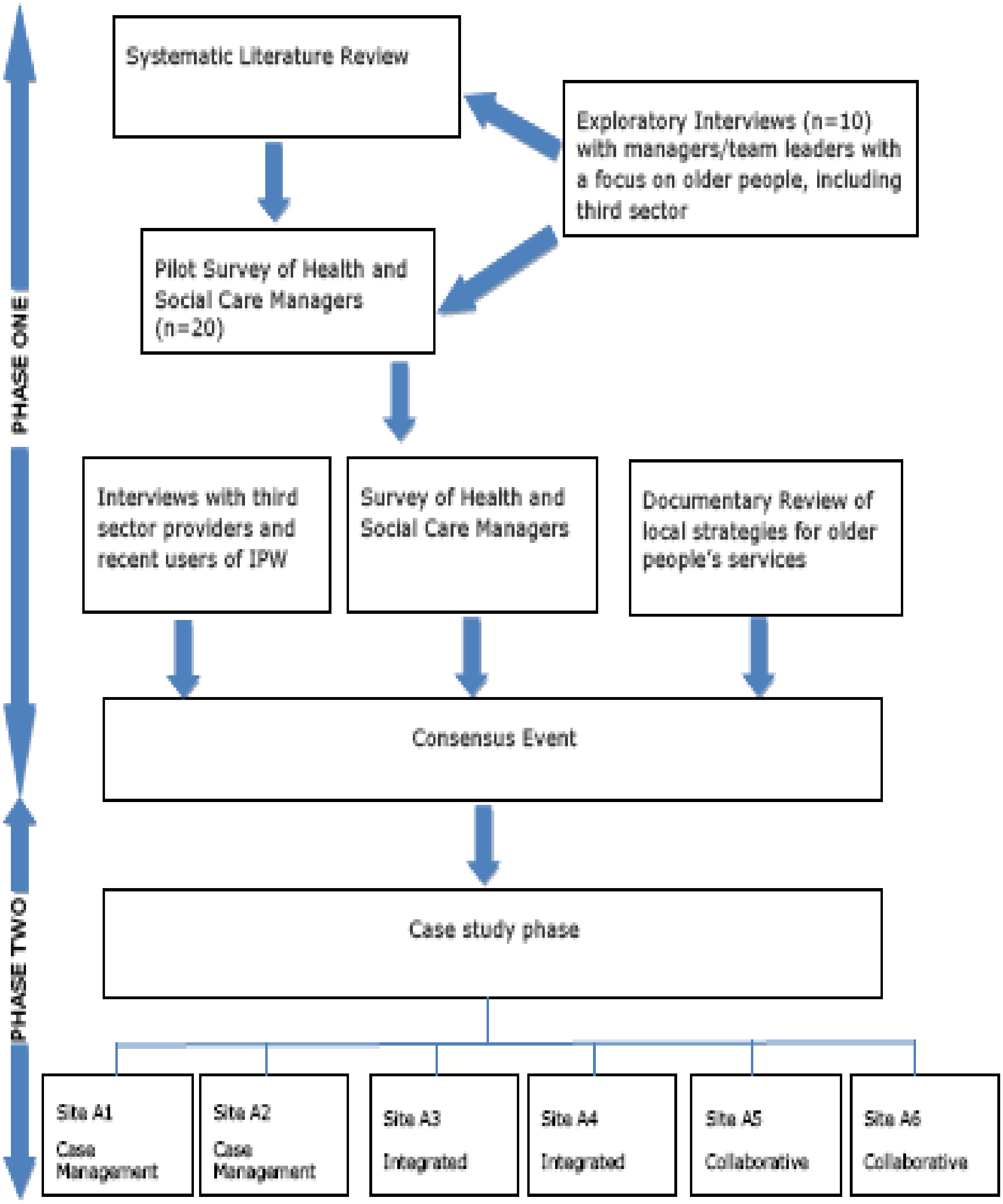
2. Survey of managers and local strategy reviews to establish the ways in which IPW for community-dwelling older people is defined, structured, commissioned, financed and evaluated across England (Chapter 4).
3. Investigating the perspectives of community-dwelling older people with multiple health and social care needs, and of their family carers, regarding definitions and outcomes of effective IPW, and incorporation of their views into user-centred outcome measures (Chapter 5).

A thread of work linking all three elements was the iterative development of the three models of IPW for older people services identified as operating within the NHS. These models were the focus of the case study phase and informed the identification of sites. They were developed through the systematic review, the survey, the consensus event and in discussion with the Advisory Group.

Phase Two investigated, prospectively, the experiences, costs and perceived outcomes of community-dwelling older people of different models of IPW through case studies undertaken in six different sites in the South and East of England over nine months.

A brief introduction to each of these studies is provided in the rest of this chapter, along with a description of the three models of IPW that emerged from the work conducted in Phase One.

Figure 1 TOPIC Study Design



2.2 Systematic review

The aims of the systematic review were to identify the IPW models and contextual settings that have the strongest evidence base for practice with community-dwelling older people and to explore the literature for appropriate measures of effectiveness from user, professional and organisational perspectives. This work is described in Chapter 3.

2.3 Survey and review of local strategy documents

The systematic review underlined how even relatively specific forms of IPW were poorly defined in research terms. A key challenge therefore was to capture the heterogeneity of current provision. The advent of the personalisation policy agenda and policy messages about the importance of publicly funded service integration meant there was a further need to investigate whether organisations were reconsidering how they worked together to support older people living at home.

Two different approaches were used to capture the contemporary range of approaches to IPW adopted by statutory health and social care organisations. The first was a survey of health and social care managers directly involved in providing services to older people, comprising a series of interviews with selected managers and leaders of IPW groups, followed by an internet-based questionnaire survey of managers with responsibility for older people's services in all English PCTs and LAs.

After receiving a report of the interviews and work on questionnaire development, the Advisory Group suggested additional methods to support the development of the questionnaire design and to supplement the data collected. This included documentary analysis of local area strategies to complement the evidence from the questionnaire. Hence, this additional process of data collection and review was undertaken, focussing on local strategies for older people’s services published by those with statutory responsibilities: primary care organisations (NHS Trusts) and local government adult services (social services). Details of this work are provided in Chapter 4.

2.4 Service user and carer perspectives

The final element of Phase One involved a purposively selected group of older people, their carers, and third sector organisations. The purpose was to involve a broad spectrum of Service user views in the development of measures of effectiveness for the case study phase. Data collection was through one-to-one interviews and a consensus event. Chapter 5 provides an account of these studies.

2.5 Phase Two: The case studies

The case study phase was based on the assumption that the delivery of effective interprofessional working (IPW) is best understood over time. A prospective longitudinal method allowed us to consider the impact of IPW on older people's lives at times of crisis and periods of relative stability, as well as to monitor the impact (from their perspectives) of different patterns of working, relationships with key practitioners, and possible organisational upheaval from the reorganisation of health and social care servicesor similar.

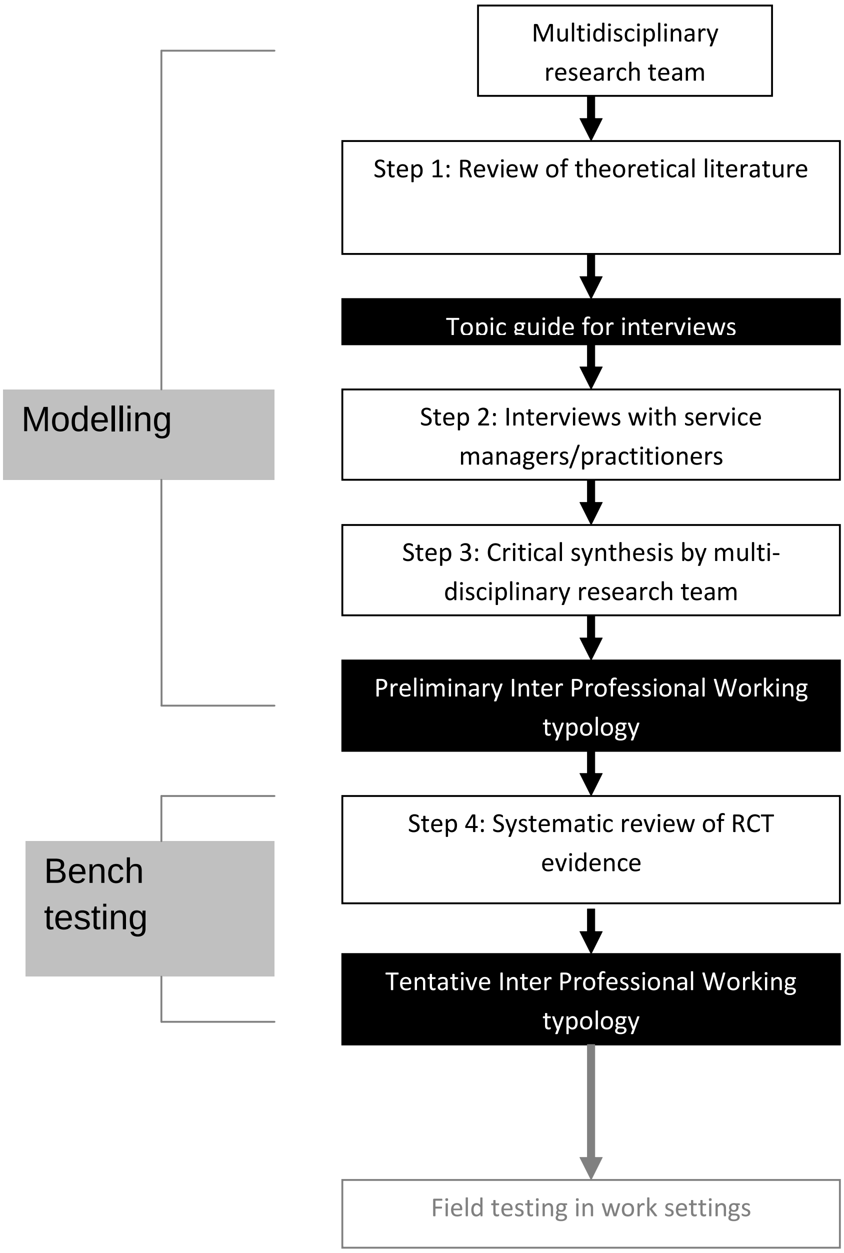
2.6 Development of the IPW models for evaluation in the case study phase

Much of the literature on IPW models of care is generic, and for the case study phase we needed to select a range of IPW models of service delivery for older people living at home that reflected the range of experience and provision in England. We used multiple sources of evidence to capture the range of IPW models used to provide care for community-dwelling older people (chapter 4), the evidence for their effectiveness (chapter 3) and establish to what extent these models were recognisable by older people, their carers and the different professionals involved (chapter 5). Finally, we presented the selected IPW models to practitioners in study sites as a basis for recruitment and identification of the IPW model they were working with. The process was conducted iteratively and the final models were used not only to inform Phase two, but also in the analysis of literature described in Chapter 3. Consequently, the development process is described here.

2.6.1 Development Process

Research on team working and IPW has generated a literature describing different theoretical and organisational models of IPW (e.g. (17, 20, 44, 45)). These have considered the goals of care (e.g. (34, 46, 47)), the internal dynamics and organisation of different configurations of professionals (e.g. (48-50)), and the opportunities they afford for interprofessional education (IPE) and training (e.g.(24, 51-53)). The review took as its starting point the theoretical assumptions that conceptualise IPW as a continuum (20, 27, 54, 55). A preliminary classification of IPW models was based on two sources: the theoretical literature on IPW (22, 56, 57), and interviews with health and social care professionals about their experiences of IPW. This informed an initial analytic framework for the categorisation and review of studies (Figure 3). Text in grey boxes on the left show how steps in the process correspond to the development process used and the different stages of enquiry.

Figure 2 Methodology of typology development for Interprofessional working



Identification of IPW models

Combining information obtained from the theoretical literature, the interviews with service managers, and the examples of IPW described in Trial and Systematic Review literature, we developed a seven category model of IPW for older people, which is summarised in Table 1.

Table 1 Summary of IPW models for older people and their characteristics

IPW model	Characteristics
Case Management (Coordinator / Care Manager / Key Worker)	Practitioners co-ordinated by a case/care manager to address the needs of client. Case meetings, care planning and exchange of information are coordinated by case manager.
Communication	Practitioners share communication about clients and use this information to plan own care delivery. Communication principally electronic (could include letters) – no case conferences or shared documents, no team meetings: main goal is to minimise costs and achieve effective distribution of resources.
Collaboration	Grouping that accommodates different types of practitioners from different organisations who work together for a specific outcome for a particular client.
Full integration	Established multi-professional team that has a specific function across all needs or outcomes, and shared goal of meeting the client's need to self manage their condition
Network	Institutionalised method of organising different professionals with accountability to and under authority of a 'Medical Director' (GP or Geriatrician) who supervises assessment and planning of care.
Organisational Learning	There is a focus on securing new competencies and knowledge (for maximisation of client benefits and outcomes) e.g. education of GP or nurses, carers in management of depression/falls in older people.
Integrated Team Management	An established multi-professional team of health and social care practitioners. Team works together to meet client needs with face-to-face and telephone meetings and conferences. The team goal is to realise specific client goals.

We categorised the research studies identified using six of the seven models of IPW identified in Table 1 (the communication model was excluded because one of the inclusion criteria for the systematic review was face-to-face contact between professionals). We reviewed each model's comprehensiveness and validity as a representation of IPW for older people. This process took place within the multi-disciplinary research team and with the wider Study Steering Committee. Discussion focused on areas of overlap and models of IPW that applied across organisations and those that were specific to the delivery of care to older people and/or their family carer.

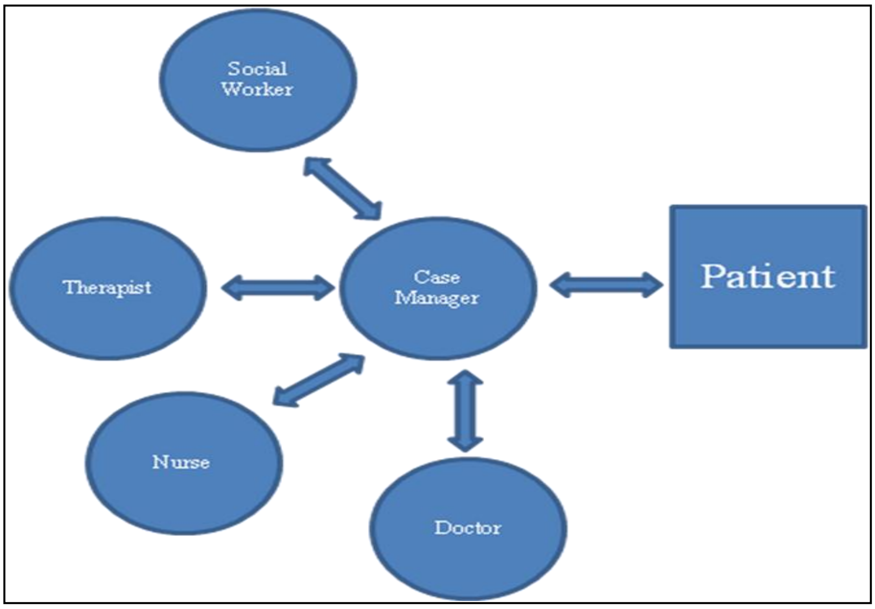
The six-model categorisation was tested in a second independent assessment by members of the TOPIC team (DT, VMD, CG), by allocating models to the types of IPW described in trials included in the systematic review. There was broad agreement on the model allocations, but some disagreement about allocation of the network and the organisational learning models. Following further discussion, it was agreed that the network and organisational learning models were actually overarching principles of IPW, cutting across the organisational and service delivery levels described in the studies. Hence, a revised set of three IPW models was adopted for the review and subsequently within the case study phase.

The development process, though described here as linear, was iterative with each element of the study informing and refining the final identification of the IPW models of interest: Case management, Integrated team and Collaboration.

1. Case management

In this model medical and non medical professional staff are co-ordinated by a case manager to address the needs of a client. Case meetings and exchanges of information are also co-ordinated by the case manager. An individual care plan is often the product of case management meetings. In this model, professionals are linked together because of their working relationships with the case manager. If the case manager were not present there would not be a means for the professionals to work together. We illustrate this model in Figure 4.

Figure 3 Case Management Model

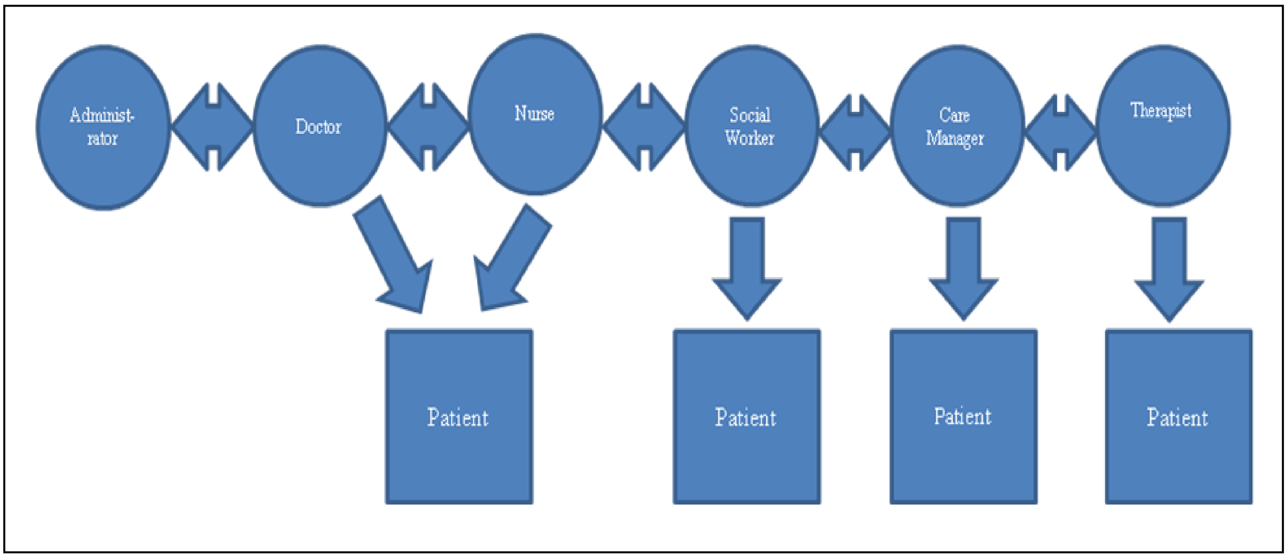


2. Integrated team

This is an established multi-professional team whose recognised members have organisational links with one another. Together they have a particular function that addresses a specified client group, a range of client needs and shared goal of helping clients to self manage and/or achieve an improved level of function or independence. Even without a client this group of professionals forms a discrete unit and has mechanisms for working together.

Practitioners may be situated within such teams or work collaboratively alongside the team but outside the organisation. There may not be a clear leadership or case manager role. We illustrate this model in Figure 5.

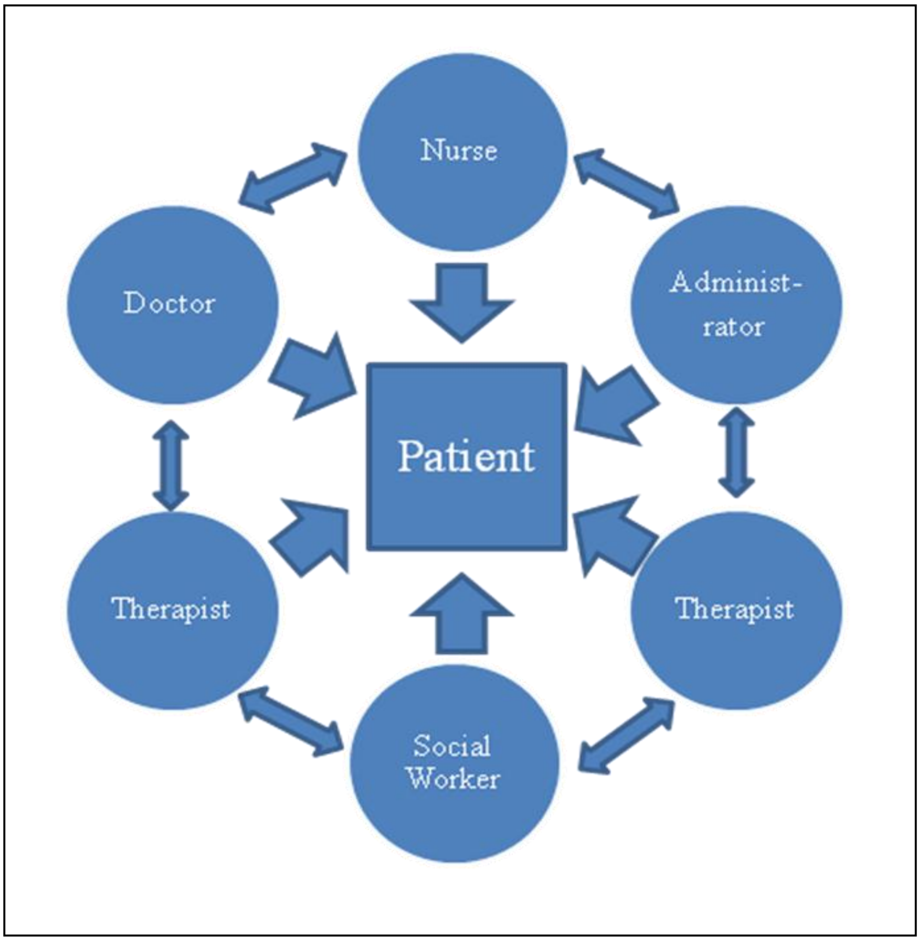
Figure 4 Integrated team model



3. Collaboration

Professionals involved in providing care to clients may come from different organisations but they work together to achieve a specific outcome for a client. They only work together when they have a client in common. They have few or minimal patterns of association when they do not share a client although they have established and formalised methods of working together when providing client services (e.g. referral, case discussion, protocols of care, review processes, etc). This model is illustrated in Figure 6.

Figure 5 Collaboration model



The refinement of the IPW categorisation from seven to three models produced a more robust and parsimonious scheme that could be applied to both the systematic review and the case study phase of this study. The model descriptions are not markedly different from some other conceptualisations of organisational mechanisms (integration, coordination, linkage) in health and social care services (20). However, our models are specific to services for older people. They enabled us to organise and review the empirical evidence and to study, in depth over time, how IPW for older people living at home in England is organised. Significantly, these were IPW models that professionals recognised and could situate themselves in. This was true even when their work titles (e.g. integrated team, community matron, care manager) might have suggested a different model of IPW to the one they identified as best capturing how they worked with other practitioners and services.

3 Evidence from research: the systematic review

3.1 Introduction

This systematic review was conducted to support the TOPIC study by providing an evidence base for the effectiveness of different professional groups working together with older people living in the community. It was also designed to identify key concepts and definitions and inform the development of the questions that the empirical study had explored. It contributes to the following research questions:

Question 1. What is the evidence of effectiveness for older people's health and wellbeing in different models of interprofessional and interagency working in primary and community care?

Question 2. How do community-dwelling older people with multiple needs, and their carers, perceive and define effective interprofessional working (IPW) across health and social care services, and to what extent can these be developed into tools for outcome measures of effectiveness for IPW in primary and social care?

Question 3. To what extent do different structural models (with attendant variety in supporting infra structures) of IPW for community-dwelling older people with multiple conditions, impact on the processes, costs, staff morale and user outcomes?

To date there has not been a synthesis of the evidence on how different models of IPW and delivery contexts, and the mix of professionals, agencies, roles and services, influence effectiveness in terms of sustainability and outcomes for older people and staff. An overview of international evidence has highlighted the complexities of partnership working and a lack of evidence linking partnership working to explicit Service user outcomes (31). A systematic review of coordinated and integrated interventions reported some evidence of benefit for frail older people and reduced health care utilisation. However this finding was from less than seven studies and did not focus specifically on IPW models (58). One meta-analysis of five studies (59) suggested that interprofessional collaboration can improve healthcare processes and outcomes, although the authors could not draw any conclusions about the key elements of interprofessional collaboration and its effectiveness. This review included inpatient settings and did not specifically target older people.

For the TOPIC study, the systematic review addressed the process of IPW and tested its effectiveness on Service user patient and carer outcomes. It aimed to identify the types of models and contextual settings that have the strongest evidence for practice with community-dwelling older people, and to explore the literature for appropriate measures of effectiveness from user, professional and organisational perspectives.

Specifically, the review addressed the following questions:

- What types of IPW interventions are described in the literature?
- How is IPW organised?
- What are the outcomes of different models of IPW?

This chapter provides a summary of the methods and a synthesis of the findings, highlights gaps in the literature, identifies methodological challenges in the evaluation of IPW, and makes recommendations for research and practice.

3.2 Methods

3.2.1 Definition of IPW

IPW was defined as having one or more of the following features:

1. A shared care plan that involved joint decision making by the interprofessional /multi disciplinary team
2. A shared protocol or documents (e.g. care pathways) that involved joint input from an interprofessional /multi disciplinary team
3. Face-to-face team meetings or routine team communications about individuals' care plans.

The definition and process of development of IPW models used in the review are described in Sections 2.0 and 2.6. The models informed an initial analytic framework for the review and categorisation of studies.

3.2.2 Selection criteria

Included studies were randomised controlled trials (RCTs), qualitative studies linked to RCTs that described IPW for community-dwelling older people with multiple long-term conditions, controlled studies and before/after studies with a prospective control.

Excluded studies were those that involved

- Hospital inpatients, unless the intervention was concerned with improving the interface between primary and secondary care for older people,
- Specific physical diseases, except mental health disorders which are age-related (e.g. dementia).

- Care home residents, unless the intervention was delivered by primary care practitioners.
- Hospital at Home interventions, because their diversity made incorporation of their data unfeasible.

One study describing an organisational learning model was also excluded because interprofessional education was beyond the scope of our review. The typology and the categorisation of the evidence were used in the development of research tools for subsequent study elements.

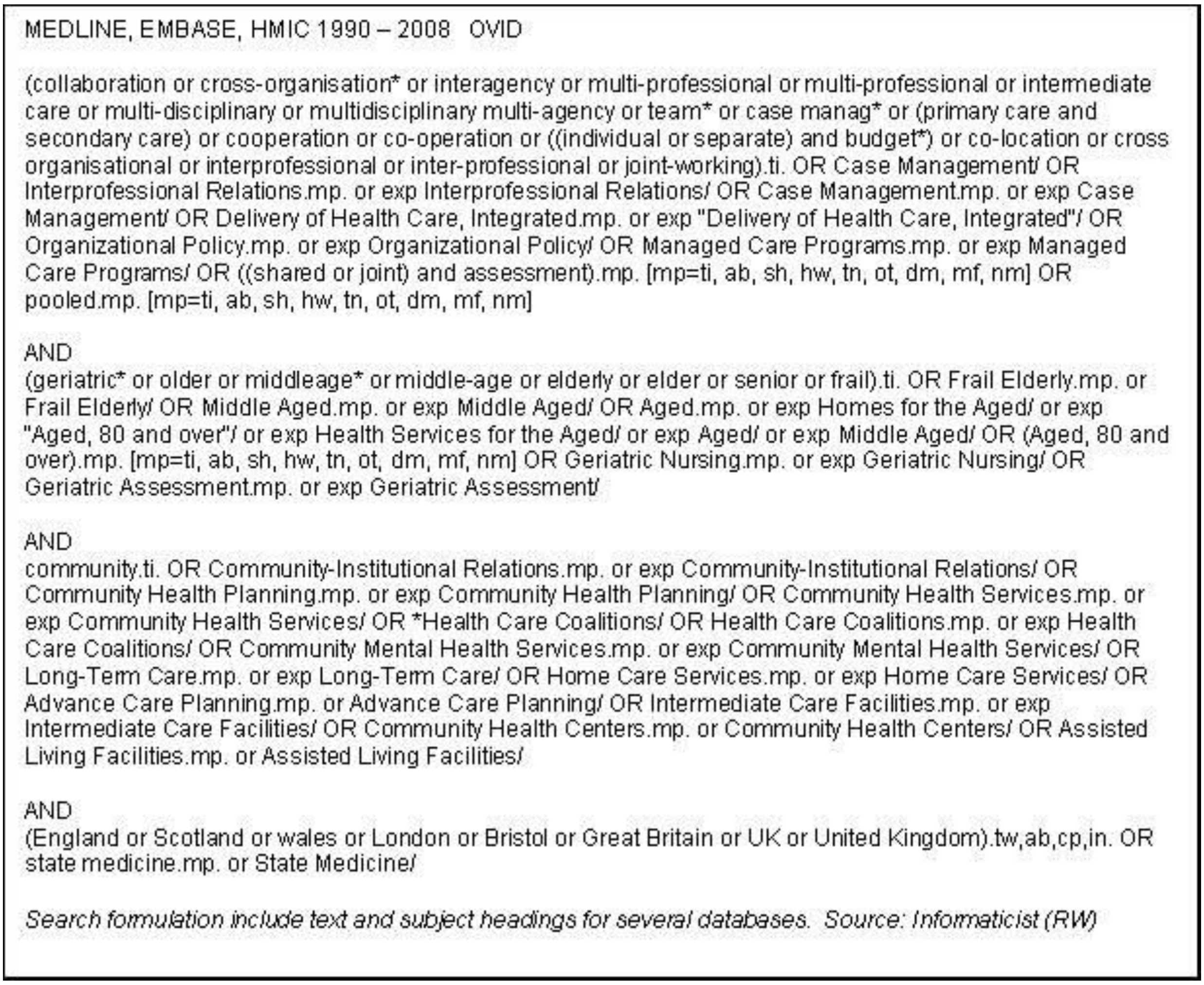
We selected outcome measures that were patient-relevant and self-reported or validated and consistently given as measures of effectiveness across the studies reviewed. These included changes in health status (e.g. clinical/functional), mortality, quality of life, service utilisation (e.g. admissions to hospital, costs), patient satisfaction and experiences, as well as those related to processes of care (Evidence tables 4-6, Appendix 8).

3.2.4 Search procedures

Using these eligibility criteria, we searched the following English language electronic databases from 1 January 1990 - 31 March 2008: Medline (PubMed), CINAHL, BNI, EMBASE, PsycInfo, DH Data, King's Fund, Web of Science (WoS incl. SCI, SSCI, HCI), TRIP, Cochrane Library including DARE, NTIS, SIGLE, NRR, Dissertation Abstracts, DH and similar websites.

We applied a British / European / NHS / State Medicine filter to retrieve as many studies as possible relevant to the UK, using terms for community-dwelling elderly people, health services and IPW (see Figure 8). Lateral searching' techniques were also applied (60). Subsequently (December 2010) we updated the searches on PubMed, Cochrane and Campbell Collaboration for systematic reviews published since 2008.

Figure 6 Search strategy for interprofessional working



MEDLINE, EMBASE, HMIC 1990 – 2008 OVID

(collaboration or cross-organisation* or interagency or multi-professional or multi-professional or intermediate care or multi-disciplinary or multidisciplinary multi-agency or team* or case manag* or (primary care and secondary care) or cooperation or co-operation or ((individual or separate) and budget*) or co-location or cross organisational or interprofessional or inter-professional or joint-working).ti. OR Case Management/ OR Interprofessional Relations.mp. or exp Interprofessional Relations/ OR Case Management.mp. or exp Case Management/ OR Delivery of Health Care, Integrated.mp. or exp "Delivery of Health Care, Integrated"/ OR Organizational Policy.mp. or exp Organizational Policy/ OR Managed Care Programs.mp. or exp Managed Care Programs/ OR ((shared or joint) and assessment).mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, nm] OR pooled.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, nm]

AND
(geriatric* or older or middleage* or middle-age or elderly or elder or senior or frail).ti. OR Frail Elderly.mp. or Frail Elderly/ OR Middle Aged.mp. or exp Middle Aged/ OR Aged.mp. or exp Homes for the Aged/ or exp "Aged, 80 and over"/ or exp Health Services for the Aged/ or exp Aged/ or exp Middle Aged/ OR (Aged, 80 and over).mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, nm] OR Geriatric Nursing.mp. or exp Geriatric Nursing/ OR Geriatric Assessment.mp. or exp Geriatric Assessment/

AND
community.ti. OR Community-Institutional Relations.mp. or exp Community-Institutional Relations/ OR Community Health Planning.mp. or exp Community Health Planning/ OR Community Health Services.mp. or exp Community Health Services/ OR *Health Care Coalitions/ OR Health Care Coalitions.mp. or exp Health Care Coalitions/ OR Community Mental Health Services.mp. or exp Community Mental Health Services/ OR Long-Term Care.mp. or exp Long-Term Care/ OR Home Care Services.mp. or exp Home Care Services/ OR Advance Care Planning.mp. or Advance Care Planning/ OR Intermediate Care Facilities.mp. or exp Intermediate Care Facilities/ OR Community Health Centers.mp. or Community Health Centers/ OR Assisted Living Facilities.mp. or Assisted Living Facilities/

AND
(England or Scotland or wales or London or Bristol or Great Britain or UK or United Kingdom).tw,ab,cp,in. OR state medicine.mp. or State Medicine/

Search formulation include text and subject headings for several databases. Source: Informaticist (RW)

3.2.5 Screening for study selection

Titles and abstracts were screened in Endnote by one author Daksha Trivedi (DT) with a random 10 percent of records independently screened by another researcher Claire Goodman (CG). Full papers were assessed jointly by DT, CG, Vari Drennan (VMD), with at least 10 percent independently screened by two members of the research team (CG, Frances Bunn (FB)). Relevant reviews identified from the updated search were screened independently by DT, CG, Steve Iliffe (SI).

3.2.6 Data extraction and quality assessment

Data were extracted using a piloted form which included types of intervention or service models, providers, participants, outcomes (used at longest follow up), study design and types of interprofessional teams, location, organisation and processes of care. Descriptive and outcome data were extracted by two reviewers and checked by a third. Data on resource/service use and costs were extracted by Heather Gage (HG). Quality assessment and applicability were conducted on all RCTs by DT in accordance with NICE Methodology Checklists, with additional criteria developed to guide the overall grading of the studies (61). Independent data extraction on functional/clinical outcomes and quality assessment was further conducted in 12% of the studies. Where necessary, we sought further information from authors.

3.2.7 Data synthesis

We synthesised the evidence according to our key research questions, and findings are discussed according to the type of care identified within each model of IPW (e.g. acute, chronic, palliative and preventive care). Due to the heterogeneity of participants, follow up periods and outcomes, an overall meta-analysis was not appropriate and data are presented in narrative synthesis. For resource use and cost data, the data extracted reflected what authors reported in the papers, which varied substantially. Where available, resource use associated with the interventions, service use offsets and costs were recorded.

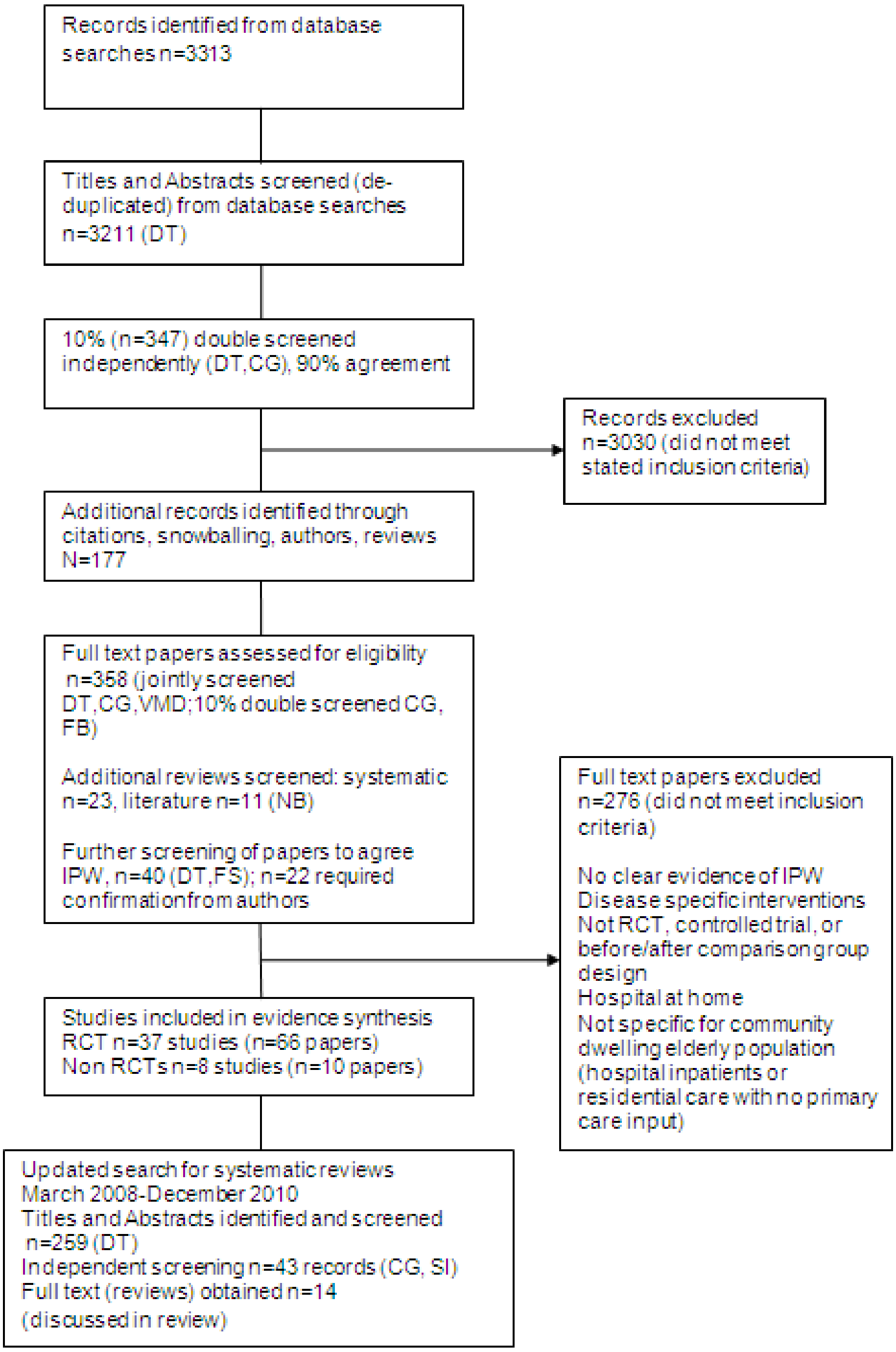
It had been intended to include a synthesis of cost effectiveness data in the review but consideration of included papers showed that this was not feasible for several reasons: a general lack of information, or clarity of information, in the papers about the intervention, resource implications and costs; large heterogeneity in patient groups, settings, health care systems and outcome measures in the included papers, meaning that data from individual studies could not be combined, and models could not be compared; concerns about the allocation of studies to IPW models, for example the overlap between case management and full integration, which cast doubt over the validity of the comparisons between models; and the fact that some of the studies with economic analyses had been published over a decade ago, and presented rudimentary cost analyses. The findings of more recent and robust economic evaluations were included, but their findings were specific to the target patient group, and context of delivery, and were not necessarily generalisable.

The Systematic Review dataset was analysed in two stages as a methodological strategy to manage the volume of data. Stage 1 focused on RCT studies, and stage 2 on the non-RCT studies. We updated the findings of this review using systematic reviews identified after March 2008.

3.3 Results

We screened 3211 citations published up to March 2008, of which 358 papers were deemed to be potentially relevant and were retrieved. We identified 37 RCTs (reported in 66 papers) and 8 non-randomised studies (reported in 10 papers), which described IPW according to our definition (section 3.2.1). We retrieved 259 records from our updated search for systematic reviews, of which we obtained full papers for 14 relevant records (Figure 9).

Figure 7 Flow chart of study selection process



3.3.1 IPW Models

We identified three models of IPW capturing the breadth of literature reviewed (see Table 2). Included studies were assigned to one of three IPW models of care on the basis of the description in the paper of the intervention itself and *how* the delivery of care was actually organised. In consequence, some studies were assigned to a different model than the one named by the study authors. For example, an intervention that was described as case management but was reliant on IPW within a set group of professionals with defined mechanisms for working together (e.g. joint care planning/reviewing) was categorised as integrated care with case management. (62).

Table 2 Organisation of interprofessional working within models

Type of inter-professional working model	Case Management (CM)	Collaboration	Integrated Team
	• Key worker assumed leadership role • Coordinating care, reporting back to professionals • Addressed patient needs in a co-ordinated manner • Professionals usually came from the same organization (e.g. Managed care) but involved other community agencies.	• Different professionals worked together on a patient by patient basis • Usually came from different organizations. • Established methods of working together • Although there is no designated key worker role as in the CM model, members assumed lead roles	• Most professionals came from same organization. • Unlike the CM model, IPW relied on an acknowledged team • Worked almost exclusively with one another dedicated to a particular function (e.g. hospital outreach), joint care planning. • Medical professional(s) were within the team (with or without a clear leadership role) or work alongside the team but outside the organization. • Model did not preclude a case manager
Type of care			
Acute care: Discharge Planning Intermediate Care Rehabilitative care and support		• GPs have active input including pre-discharge visit • Geriatrician and GP collaboration • Care pathways with multi-disciplinary involvement, protocols • • Trained/qualified nurses collaborated with GPs through joint management & patient involvement • Complex cases involved social worker	• Physician led or GP involvement as required • Individual packages of care •Continuous home care •Integrated networks, continuity of care, increased patient contact •Trained personnel including VA nurses & physicians • Case management within integrated team providing rehabilitation • Jointly commissioned (local health authority/ council)
Chronic care models: Generic care Network Rehabilitation Mental health Integrated care with CM SCC model WPP	• Intensive CM, trained key worker • Structured, extensive communication routes • Formalizing CM's role, inter-organisational agreements, • Multi-professional support, protocols, joint care plans, regular case meetings • Well coordinated community based teams, physicians involved, • Patients/families involved in care plans. • Mobilize resources flexibly and facilitate transitions into community (SIPA) • Professional/ non-professional	• GPs and service co-coordinators (trained) conducted joint assessment & care plans, communicated to service providers • Systematic clinical improvement for protocols •Empowered patients (Partners in health care approach) • Culturally appropriate, good access, support by trained specialists • Extensive co-ordination through inter-agency multi-site networks, joint budgets • Advanced key workers • Shared care with GP/physician, prior training • Nurse managed care, close liaison with professionals, carers' training • Co-location of health & social care teams	•Enhanced role of nurses for CM, care planning by trained coordinator • Joint review by geriatrician and IP team, referral to GP if required • Facilitating better access. •GEU based teams and GPs designed, reviewed, implemented care plans • SCC model had trained teams across three counties and joint care planning with physicians •Established team for psycho-geriatric care had extra doctor as key worker. •Jointly conducted by social services &health authority • MDT provided wide range of care including volunteer service & financial benefits

3.3.2 Characteristics of included studies

Almost half the studies were from the United States (US); the rest from mainland Europe, Australasia, Canada, UK and Hong Kong. Tables 1-3 (Appendix 7) show descriptive data according to the IPW model, types of care and interventions. Nineteen studies were categorised as 'integrated team', 11 as 'collaboration' and 7 as 'case management' model. Even with the broad categorisation of IPW models used, some 'hybrid' studies combined one or more IPW models.

Twenty five RCTs were graded as having high risk of bias (-) (low quality), six as medium risk (+) (medium quality) and six as low risk (++) (good quality). Comparison groups, study size and follow-up period and rates varied considerably and not all studies provided power calculations. The extracted data is shown in Tables 4-6 (Appendix 8). These tables also provide the quality gradings assigned to each paper, which are referred to in the various sections of the evidence synthesis reported below. Five non-randomised studies were from the UK, two from mainland Europe and one from the US. Two were classed as describing the case management model, three the collaboration model and three the integrated team model.

3.3.3 Evidence synthesis by IPW models

Findings are presented according to our stated research questions.

What types of IPW interventions are described?

We found considerable heterogeneity in types of service models (Tables 1-3). They ranged from acute care (aiming to shorten stay and for example involving rehabilitation, discharge planning and care), chronic care (for complex/ long-term conditions), palliative care and preventive care (e.g. geriatric evaluation and management (GEM) with comprehensive geriatric assessment and falls prevention). Most interventions included assessment, education and monitoring and some studies delivered more than one type of care (63, 64). Comparison groups were offered 'usual care' or 'uncoordinated care' without the specified intervention. Other non-randomised studies evaluated coordination of care, joint integrated health and social care teams and partnership programmes (34, 65-67). Although focused on primary care, IPW interventions included diverse groups and settings.

How is IPW organised?

IPW within each model was organised according to the type of care being delivered and not how IPW was named. This varied considerably in studies describing similar interventions. The organisation was often unclear, particularly in relation to dimensions such as leadership, responsibility, accountability, input by different professionals, frequency of meetings, contacts, history and funding. Key organisational elements are summarised in Table 2 (and detailed for each study in tables 1-3, Appendix 7).

Some studies aimed to evaluate specific intervention, e.g. discharge planning, whereas others evaluated co-location of health and social care teams with or without joint management or budgets (34, 65). The interprofessional team members varied in their level of input and whether or not physicians/GPs were involved. Often the role of case managers varied depending on whether they conducted a discrete activity as key workers with a looser association with professionals (studies in the case management model) or they were placed within an integrated team (e.g. (62, 68) (see section 3.3.1).

What are the outcomes of different models of IPW?

Outcome data are shown in evidence Tables 4-6 (Appendix 8). There was considerable heterogeneity in the outcomes reported and how they were measured at different follow-up periods. The results are organised according to outcomes and type of care within the IPW models, with a summary of findings in Tables 4-6 for the three models respectively. *(Related papers are shown in the evidence table*s). In this section we summarise the key findings according to IPW models and type of care.

Case management model

RCTs: There is mixed evidence on a number of outcomes from six low quality (-) studies and one good quality study (++) (69). Four studies described chronic care, one palliative care and two preventive home care. Four showed some improvement in health outcomes, most showed improved patient satisfaction, but there was mixed evidence for service use/costs and no effect on mortality.

The studies targeted mostly older women (70), (71, 72), with activities in daily living (ADL) impairments, recently discharged from hospital or people within a 'managed care' system (Kaiser-Permanente) at high risk for poor outcomes (72), high Service users (73), and women from low socioeconomic groups (69).

Chronic care: There were no overall group differences for chronic care, although one study reported less decline in mental functioning from before/after comparisons. It reduced hospital admissions, emergency room (ER) visits, and acute bed days, whilst using more community resources (74).

A study based within a US health maintenance organisation (HMO) reported significant improvements in health and functional status in the intervention group (IG) at two years, but with higher service use and costs in the last month of life (75). It reported increased satisfaction at 12 months but not at 24 months (72).

One Geriatric Care Management (GCM) intervention reported a significant reduction in depression, with a trend towards reduced depression in the group who were offered the opportunity to purchase services, although less than half of the participants used this benefit (73). All groups reduced caregiver burden.

The System of Integrated care for older People (SIPA) intervention improved access to health and social care, increased perceived quality of care and greater patient and caregiver satisfaction (with no supporting data). It reduced delays in hospital discharge with no difference in overall costs. It reduced hospitalisations among the most disabled and apparently delayed nursing home (NH) moves by lower risk patients (70, 71). Qualitative data from SIPA model reported better clinical responsibility over the span of services and agencies, information sharing, rapid and flexible use of resources, physician involvement in inter-disciplinary working, and to some extent, financial responsibilities (71).

Palliative care: Phoenix care improved Quality of Life (QoL), with reduced decline in physical function and general health, with no effect on emergency room visits. It reported good satisfaction (76).

Preventive care: Home based geriatric evaluation and management with comprehensive geriatric assessment can delay the development of disability and reduce nursing home admissions (77). It reduced disabilities among people at low risk of impairment according to one good quality study (69). The intervention reduced nursing home use, resulting in net savings. Among low risk subjects, visited by two nurses (A and B), the intervention had favourable effects on ADL/IADL, reduced nursing home admissions and resulted in net cost savings in the third year, with no effect in subjects visited by a further nurse (C), who identified fewer problems, suggesting that the home visitor’s performance may be important.

Non-randomised studies: Two case management studies showed improved processes of care with little effect on patient outcomes or hospital admissions (67, 78) see also the related studies of (79, 80). Coordinated care providers reported improved continuity of care, with professionals experiencing more effects than non-professionals, with no effect on patient satisfaction. They had no power, authority or budgets to affect care (81). The Evercare model targeting a high risk elderly population was highly valued by patients and carers as it provided an additional range of services, although there was a mismatch between nurses’ accounts of avoided admissions and quantitative data. This could be attributed to better case finding rather than resolving unmet needs (78, 80) or simply the provision of extra resources.

Collaboration model

RCTs: Eleven studies described collaboration. Three focused on acute care, four described chronic care, three preventive home-based care and one outpatient care. Around half reported improved health/functional outcomes; most detecting improved process measures and Service user satisfaction, with mixed evidence on service use/costs. There were no differences in mortality from nine studies, except one study of community hospital intermediate care significantly reduced mortality (82).

Acute care: Three studies of low/medium quality were concerned with the delivery of acute care. They included people at risk of admissions, recently discharged from hospital or in need of hospital care (82-84). No effect on any health or functional outcomes was reported (82, 84). Discharge planning and follow-up home care reduced readmissions, increased the time between discharge and readmissions and reduced costs (84). A pre-discharge GP visit in one (+) study showed no effect on length of stay (LoS) or hospital readmissions, and significantly more patients were recommended for support services such as home nursing (83), although costs implications are unknown. Intermediate care at a community hospital was associated with short term reductions in use of primary care services and hospital readmissions, but there were no long-term differences in either outcome (82). Discharge planning improved patient satisfaction, quality of care and collaboration (83).

Chronic care: Four studies were concerned with chronic care. Of these, only one was of good quality, and focussed on people at high risk of 'institutionalization' (85). The others were graded as low methodological quality. The South Australian Health Plus trial targeting diverse patient groups reported improved physical function in the intervention group over time (86, 87), whereas a network rehabilitation model showed no effect on function but improved subjective health (85). Two collaborative models improved depression (88), (89) the former reporting no effect on functional ability.

The South Australian generic model reduced admissions, but with no net savings and high coordination costs, although it is not known if potential gains in survival, QoL and financial savings could be achieved in the longer term (86, 87). Funding reallocation reduced emphasis on secondary care and increased primary level support. It improved access and qualitative data suggested that coordination processes improved confidence, enablement and patient outcomes ((90)related to (86, 87)).

A network rehabilitation programme showed no effect on outcomes, despite more frequent home visits by health and social care staff, although increases in support/social care were reported, but no cost data were presented. Qualitative reports showed that rehabilitation key workers exercised autonomous practice, but had high workloads and inadequate resources (91). Two collaborative models improved depression (88, 89), the former reporting no effect on functional ability. The UK model was effective and acceptable, although patients reported difficulty engaging with a self-help intervention. It is unclear if the collaboration model or IPW or patient-level intervention or medication management contributed to effectiveness ((92)related to (88)).

Non-randomised studies: Two UK studies evaluated co-located integrated team models in the elderly, mostly women with cognitive impairment and depression. Brown *et al.* (65) evaluated co-located integrated teams who retained their own management pathways, separate professional line-management and budgeting arrangements. The model did not result in better outcomes, although the patients receiving care by the integrated teams were more likely to self refer and to be assessed more rapidly, and patients were generally satisfied. Davey *et al*. (34) compared integrated care teams co-located with primary are professionals and having joint budgets with traditional care having no co-location in two geographical areas with high levels of morbidity and deprivation. Tracking communication between the team members showed that co-location did not lead to closer IPW and did not have any effect on living at home, move to long term care or service use. Other factors affecting outcomes, such as cognitive impairment, intensity of home care received, whether people lived alone, need to be considered in assessing effects of collaborative working (65). One US study investigated a variant of the Program for All-inclusive Care of the Elderly (PACE), the Wisconsin Partnership Program (WPP). This integrated funding from existing Medicaid/Medicare programs into one program, and aimed to reduce use of long term institutions (care homes), cost shifting between payer sources, increase continuity of care and improve patient outcomes, but it had no effect on any outcomes, although more people under the care of the WPP required intermediate care compared with controls. In this model, a nurse liaised with a physician who may not be directly participating in team meetings. The small number of WPP cases per participating physician may suggest that physicians may not have influenced the way care was managed (66).

Preventive care: Three home based studies were of low (-), medium (+) and good (++) quality respectively (93-95).

A falls prevention programmes where similar professionals followed a systematic approach to assessment found no significant differences between the intervention and control group in costs (intervention, service use and informal care) and outcomes (94, 95). Frequent home assessments and reports to GP may have positive effects on QoL in older Australian war widows (93). They may increase probability of NH moves. The intensity and frequency of intervention appear important, although the veterans in this study may already have greater access to services and therefore may have lower baseline need for intervention. The authors suggest that effective collaboration can be achieved through IPW with greater confidence in abilities to improve the wellbeing of users, and greater assurances that GPs were following recommendations and benefiting from collaborative working (96).

One good quality study of older women with functional impairment showed that a relatively low cost intervention (outpatient assessment and adherence guidance) resulted in improved physical functioning and QoL, and a cost effectiveness ratio that compared favourably with other medical interventions. The intervention had no effect on falls despite good adherence to recommendations (97).

Integrated team model

RCTs: Of the 19 studies describing an integrated team model, many showed improved health/functional ability, reduced caregiver burden, user satisfaction and process measures, including quality of care. Evidence about service use and costs was mixed but around half the studies showed reduced hospital or nursing/care home use. There were no overall group differences in 16 studies reporting mortality, except one low quality (-) GEM study showing an increase in mortality (98).

Acute care: Five studies covered acute care, of which only one was medium quality (99). The rest were of low quality. They included people at high risk of hospital admissions or recently discharged.

Discharge planning improved IADL (64, 100), general health and ADL (99). Discharge care with a home intervention team (preventive care) reduced falls, improved self-perceived health, reduced LOS, readmissions and resulted in net savings (64, 101). Melin *et al.* (100) showed improved diagnosis and function, greater outpatient care, with no significant differences in readmissions or cost.

The Early Discharge and Rehabilitation Service (EDRS) showed no significant effect on hospital or nursing home readmissions but decreased hospital stay and day hospital use. Costs were not calculated (99). Discharge care with increased access to primary care post discharge care resulted in higher readmissions and longer rehospitalisation in the Intervention Group (IG) but no differences in Qol (102).

A team managed home based primary care intervention, delivering both discharge and palliative care reported improved QoL only among people who were dying, with no difference in the non-terminal group (63). It reduced readmissions at six months (but not 12 months) only for the non-terminal severely disabled group. Increased costs to the provider (Veterans Health Administration (VA) in the US) were partly offset by reduced private sector / non VA costs. Cost- effectiveness was not calculated (see palliative care) (63). Two studies reported a significant reduction in caregiver strain

(99), with most participants co-resident with caregivers (63). Patient satisfaction with discharge planning was high (63, 100, 103).

Non-randomised studies: Two studies focused on acute care. One European study described case management within an integrated rehabilitation team, providing continuous care, systematic support, rehabilitation and supporting care in the home/community to older women after a delirium episode (68). A reduction of 19 years was achieved in the cumulative time spent in long-term care, although the cost implications were not given. The other study, from the UK, evaluated an Intermediate care service (before and after introduction) for older people who were being considered for emergency admission to hospital. The service was jointly commissioned by the NHS and local authority social services with a joint care manager but had no effect on any outcomes. Closer integration of intermediate care with other older people's services was suggested (104).

Chronic care: Two low quality studies delivered case management with integrated care and included participants recently discharged from hospital with good social support. The South Winnipeg Integrated programme (SWING) showed no overall improvement in ADL/EADL but improved mental health, increased prescriptions and no effect on caregiver strain (105) It reported significantly faster deployment of home services, greater day hospital use, reduction in hospital length of stay, and delayed long-term care usage.

Bernabei *et al.* (62) showed a significant improvement in mental health, and ADL and IADL, with less deterioration in the IG and a reduction in drug use, hospital and nursing home days and overall costs in the intervention group. Cost- effectiveness was not calculated. One good quality study showed a favourable effect on depression from a psycho-geriatric team, having an extra doctor for people receiving home care. Cost data were not collected (106), whereas the Senior Care Connection model had no overall effect on health (107). The model showed potential for reduced service use, reducing hospital admissions, readmissions and office visits, with overall cost savings (107). The largest number of contacts had the lowest hospital admissions and improved physical function. It is possible that patients with more contacts could be at 'higher risk' for admissions which declined following professional attention. Two studies reported significant patient satisfaction (105, 107).

Non-randomised study: One 20 year old UK study evaluated a multi-disciplinary resource team for older people having dementia. One area of Cambridge was served by the integrated team, and the other area had access to usual care. Early intervention did not affect admission rates in those who lived with supporters/carers. However, a significantly greater proportion of older people with moderate or severe dementia living alone and receiving the intervention moved to long term care. The team worked together to identify needs, devising interventions and offered a wide range of care and support, but the researchers concluded that greater experience among professionals might be important in enabling older people to live at home longer (108).

Palliative care: Two low quality studies targeted older people living with caregivers and people from low socioeconomic and black and minority ethnic groups respectively (63, 109). The former reported no improvement in physical function, although positive effects on general and mental health were seen in the end of life group, and a significant reduction in caregiver burden was reported among others.

In one study, interdisciplinary home visits resulted in patients being less likely to visit the emergency department or be admitted to hospital, resulting in lower community, hospital and nursing home costs (109). The team managed home based primary care intervention reduced the number of readmissions only for the non-terminal group with overall higher costs, attributed to home care and NH costs (63). Higher costs should be weighed against the improved QoL, satisfaction and carer benefits. Although about half of the control group received private home care (mainly Medicare) they did not report the same satisfaction and QoL gains as the intervention group.

Preventive care: Two low quality studies improved outcomes. Geriatric Resources for Assessment and Care for Elders (GRACE) found an improvement in mental and general health but not physical function (110). It significantly improved the quality of care and reduced acute care use among a high risk group. Costs data were not collected. A home intervention team for older people recently discharged from hospital reported an improvement in cognitive health and IADL, and a reduction in falls (101). It increased community services up-take, with lower LOS, fewer days in long-term care, with overall savings. It had the potential to reduce direct costs of in-patient care and emergency nursing home admissions (64).

Eight US studies investigated GEM outpatient care but most were of low quality. Participants were older, high risk or vulnerable, recently discharged or at risk of hospitalisation (98, 111-115).

Most studies showed no improvement in any functional or health outcomes at the longest follow up, although Epstein *et al.* (114) reported a significant effect at 3 months. Four studies showed no overall group effect (112, 113, 116, 117), although one reported fewer impairments of IADL, improved QoL and cognitive health over time (112). Another reported significant effect on ADL at 12 months which was not maintained at 24 months, with a significant improvement in mental health (98). Boult *et al.* (111) reported that the GEM group was less likely to lose functional ability or experience health-related restrictions in ADL. Cohen *et al.* (116) showed no overall effect on physical functioning but some significantly improved QoL measures. Others reported improved health/function (but showed no data, (115)), improved depression (112), diagnosis of common problems, reduced family strain in a study reporting family conferences (117), and a reduction in adverse drug reactions and in suboptimal prescribing through access to pharmacists ((118)related to (116)).

The GEM studies showed mixed evidence on resource use. Eight studies reported on service use of which three provided some cost data. Some reported no overall effect on service use (111) ((113)related to (119, 120)). Burns *et al*. report higher clinic visits in the usual care group but no effect of the intervention on hospitalisations, and present no costs data (112). Improved diagnosis with no effect on resource use or costs data (117). No difference in outcomes or hospital costs (98). Overall, they showed mixed evidence: on patient satisfaction with two showing no overall effect (114) and two reporting improved patient satisfaction ((114, 117) related to (121)), (111). In one study, providers screened significantly more and viewed the IP team favourably (113). Improved quality of care was reported by Epstein *et al*. (98) and Engelhardt *et al*. (114). A good quality study of home palliative care found that older people in the IG group were more likely to die at home than others (113).

3.3.4 Training and preparation across IPW models

Whilst the review did not consider studies of interprofessional education (IPE), some studies mentioned training in delivering the interventions, a component of IPW that may contribute to better outcomes. In the case management model, Beland *et al*. (109) described prior training / competencies of professionals with continuous quality assessment. Stuck *et al*. (70, 71) reported that two nurses had a favourable effect on function, nursing home admissions and costs compared with a third nurse, suggesting that the effect could be related to the home visitor’s performance.

Two studies in the collaboration model described prior training workshops for professionals delivering chronic care models. The South Australian Health Plus trial had a Co-ordinated Care Training Unit that trained and supervised coordinators with competency assessment and accreditation, reviewed annually. They worked with trained GPs and the model improved processes of care, whereas a shared care model involving training workshops improved patient outcomes (69). Professionals delivering frequent home based preventive care and who attended regular training workshops may improve quality of life, but may not be cost effective unless targeted to specific groups (89). In the integrated team model, various studies mentioned training, of which two acute care interventions improved some short term health outcomes (93). The SWING model (case management), reported significantly faster deployment of home services with improved access and less long term care (63, 99). The Senior Care Connection model with training workshops showed potential for reduced service use and hospital admissions whilst maintaining health, with overall cost savings (105). The largest number of contacts had the lowest hospital admissions and improved physical function. Two preventive studies describing trained professionals and a senior resource team showed some improved outcomes (107) although the latter reported adverse effect on mortality.

3.3.5 Findings from recent reviews

Our updated search of systematic reviews since 2008 confirmed the sustained interest in IPW and a continuing desire to understand how the components and characteristics of IPW affect outcomes. Further conceptual frameworks of interprofessional education, practice and organisation in various settings and populations are emerging (98, 114), (122), (123). These highlight the theoretical nature of the IPW literature and the need to explore how different components and processes impact on practice. Reeves *et al.'s* (124) observation that IPW is too often represented as the outcome supports the starting premise of our review that we need to discriminate between the process of IPW and its effectiveness. Our review complements and extends their findings by focusing on the impact of IPW on community-dwelling older people. It provides a population-specific analysis of the effectiveness of different models of IPW. Whilst training may improve the effectiveness of multi disciplinary teams in acute care, there is little high quality evidence of effect on outcomes (123).

Interprofessional collaboration has the potential to improve outcomes, although studies are few and flawed with methodological limitations and mixed results (125). Boult *et al.* (126) identified 15 models of comprehensive care from 123 studies, including meta-analysis, reviews and all study types. Interdisciplinary primary care was reported to reduce health service use, improve survival, and for heart failure patients, reduce costs. The model included a primary care physician with one or more other health professionals who 'communicated frequently with each other'. Evidence for a collaborative case management model was mixed, improved quality of care, QoL and survival were documented. Their review did not examine other IPW care models for community-dwelling older people (127). The authors highlight the need to have statutory flexibility to reimburse costs to providers in the US who may not be eligible for payment by health care organisations.

As in our review, teams in different contexts, with various definitions and compositions, were described by Johansson *et al*. (127). They reviewed 37 qualitative and quantitative studies of various designs and settings, with less than half being RCTs. They reported benefit from team assessments and interdisciplinary interventions in different contexts, highlighting that mutually accepted agreements, common goals and guidelines may promote interdisciplinary team approaches, although the impact on outcomes remains uncertain.

Our review updates a recent review that showed some evidence of benefit for frail older people and reduced health care utilisation from seven RCTs of varying quality (identified until 2007) but did not discuss IPW models (128). Only two trials comparing home-based multidisciplinary rehabilitation with usual inpatient care found some benefit for caregivers. Increasing contact at home had no effect, and the cost implications of long periods of rehabilitation are unknown (58). Multidimensional preventive home visits have the potential to improve functional outcomes among older adults, but the reviews include studies of single and multi-professionals (129). One review showed that multi-factorial and some single intervention falls prevention programmes for community-dwelling older people may be effective, but it did not look at IPW, for example, home hazard assessment, described as a 'single intervention', actually involved several professionals (130, 131). Øvretveit (132, 133) suggests that integrated teams provide greater value in terms of lower costs and higher quality, although evidence is largely based on disease-specific programmes and not community focused.

3.4 Discussion

The review contributed to the proposal's stated research questions (section 3.1) by addressing the process of IPW and testing its effectiveness on Service user and carer outcomes. It synthesised the evidence according to types of IPW models and explored the literature for appropriate measures of effectiveness from user, professional and organisational perspectives.

From the evidence review, the typology of IPW models was refined and further applied in the development of research tools for the empirical study.

We evaluated 37 RCTs and 8 non-RCTs describing three models of IPW: case management, collaboration and integrated team, where practitioners from varied disciplines worked together differently according to the type of care being delivered, although the organisation of IPW varied considerably in studies describing similar interventions. IPW has the potential to positively influence outcomes and improve processes of care. Much of the qualitative data addressed quality of care, satisfaction and access, and whilst the evidence did not show explicitly how outcomes can be evaluated from user perspectives, the review identified dominant models and approaches in research.

Differentiating between models of IPW

The IPW and integrated care literature highlights the multiplicity of terms and titles used to describe IPW. By focusing on how IPW is organised and delivered, we offer a different perspective to evaluating effectiveness that takes account of context, and the configurations and processes of IPW available for community-dwelling older people. By considering the process of care we began to investigate the impact of different types of IPW for older people living at home.

For example, of the two randomised studies of discharge planning in the collaboration model one evaluated GP input and reported improved quality of care through better collaboration (134). The other study evaluating comprehensive discharge planning led by an advanced nurse showed little effect on function, but reduced hospital use (83). In the integrated model, most studies delivering discharge planning and home care reported some positive outcomes.

For those with ongoing care needs intensive case management, through inter-organisational agreements, multi-professional support involving protocols and joint care plans may achieve longer-term benefits. However, the role of the case manager within some of the integrated models of care reviewed may have been an important element of the intervention. Other information about how different professionals work together within the different models reinforces the overall finding of the review about the need for more detail. For example, the systematically coordinated South Australian trials in the collaboration model had GPs and service coordinators working together empowering the patients (84). Integrated team models had professionals (including key workers) within a community GEU and GPs designing and implementing care plans (87), increased contacts (Senior Care Connection model,(62)), resulted in faster deployment of services (SWING, (107)) and had additional doctors as key workers with an established team-patient relationship (105). The diversity of participants could further affect service coordination models and capacity to benefit from the IPW in the models. Research could explore how the components and patterns of IPW affect Service user outcomes.

The impact of different structures or contextual characteristics is difficult to assess, as the interventions in some US studies were delivered by all the professionals working to the same systems of care and having the same employer across care settings, for example the VA and HMO systems. These are different from the UK setting where referral patterns may vary and processes are likely to be internalised within an integrated system. In our review, about twenty percent of studies (case management and integrated team models) were in VA/HMO settings.

Rigorous evaluations are scarce, especially of UK-based interventions, despite the policy emphasis on evidence and the necessity of cross-organisational, public-private collaborations and IPW to support older people (14). Two Australian studies describing the collaboration model (shared by much of UK primary health care) showed that effective collaboration can be achieved through IPW and joint working with GPs (87, 93). Two UK models delivering chronic care were effective, but their effective components of IPW are unclear and costs were not estimated (106, 135). Co-location of health and social care teams in the UK may lead to rapid assessments and more self referrals (88, 106), but may not necessarily lead to substantially closer IPW and effectiveness of collaboration needs to consider the wider context of the services received by older people (65). There is no evidence to suggest that changing organisational structures will produce better outcomes, although improved processes of care may translate to benefits for Service users if greater integration can be achieved with an emphasis on the process of team working. The Wisconsin Partnership Programme (WPP) demonstrated that although it aimed to improve patient outcomes through their collaboration model of integrated funding, IPW and increased continuity of care, it was not effective. The authors highlight the need for adequate physician input to influence care management (65).

Limitations of the study

As with many reviews, some limitations derive from available evidence. Twenty five RCTs were graded as having high risk of bias (-) (low quality), six as medium risk of bias (+) (medium quality) and only six as having a low risk of bias (++) (good quality). The methodological quality ratings are based on criteria for RCTs, but the lower quality RCT studies and the non-RCT studies provided valuable quantitative and qualitative data on the processes of IPW-based care. We considered it legitimate to include such evidence in the synthesis.

Cost-effectiveness evaluations did not generally include full economic appraisals or comparative data, making it difficult to comment on this aspect. Although some studies reported modest effects on outcomes, it is possible the evaluations did not capture the complexity of IPW. Equally, because of the lack of detail on the process of care it is possible that some of the studies included in the review were, evaluating packages of inter-disciplinary services rather than IPW.

We categorised studies in what we judged to be the predominant IPW model, as defined by the theoretical and empirical literature but this may be overly reductive. Our search also excluded disease specific studies because particular features of conditions may shape regimens, resources and care pathways. Although we located broad range material, we may have excluded studies that did not provide adequate detail of IPW.

Selection of papers for inclusion was judged on the processes of IPW not the name or descriptor given to the study. Consequently, due to the diversity of their interventions, different models of care may mean very different processes of IPW. This was the case for the research on Hospital at Home interventions; as noted earlier (Section 3.2.2), to improve clarity these were not included in this report. Several of the papers we identified concerning Hospital at Home were of medium or good quality, but their inclusion would not have altered the overall conclusions of the review.

It is possible that new knowledge has emerged since our search, and the complexities of different forms of integration described in the papers are widely recognised (66) reflecting the different terminologies of IPW (136). It was not possible to clearly identify the value, or effectiveness, of IPW which has several components in a complex intervention or system of care. Unpacking the nuances of complex interventions in various care and organisational contexts can vary according to the approach taken by each study.

Implications of the review

Although this review highlights the benefit of some IPW models in terms of improved quality of care and outcomes, there is a need to clarify what IPW is trying to achieve and how different models of IPW may determine different outcomes for different groups. Research designs that are more appropriate for complex interventions and examine active ingredients of IPW need to be developed (23). IPW models have evolved as rationally-constructed mechanisms for achieving service or clinical objectives, which is why comparative evaluations of say, case management versus integrated team model, are difficult.

This review raises key questions about IPW in the delivery and organisation of care for older people with complex needs living at home. Funders might consider if there is a need for greater discrimination between the effects and outcomes of different IPW models for older people with multiple conditions.

The review demonstrates the importance of understanding the detail and organisation of IPW within different models of working that initially appear to have similar approaches and names. The literature on integrated work and IPW needs to acknowledge - as Glasby *et al*. (137) note - that structural solutions alone are not the answer. By considering the effectiveness of different models, the review has demonstrated both the importance of understanding more about links between outcomes and how professionals structure their working practices and the need for this to be described in greater detail in interventions that rely on IPW to support older people at home.

3.5 Conclusion

This review sought to differentiate between the effectiveness of interventions that relied on different models of IPW for the benefit of community-based older people. The findings were drawn from both non-randomised and randomised studies, of which most were graded as low methodological quality. Overall, the proportion of studies demonstrating improved outcomes is similar across the three main IPW models. More than half reported improved health/functional/clinical, and process outcomes, including Service user satisfaction, with only a few studies reporting favourable caregiver outcomes. The evidence on service use and costs is mixed, which is not unusual for complex care practices and IPW.

4 Perspectives from the organisational level

4.1 Introduction

This chapter considers an investigation of the organisational perspective on how services for older people that rely on IPW are structured and delivered in England. Its aim was to develop an account of the range and types of service provision in the country, to help address research Questions 3 and 4 of this study:

> Question 3. To what extent do different structural models (with attendant variety in supporting infra structures) of IPW for community-dwelling older people with multiple conditions, impact on the processes, costs, staff morale and user outcomes?
>
> Question 4. What is the impact of different types of commissioning, incentives and quality scrutiny on IPW and its effectiveness for community-dwelling older people with multiple needs and their carers?

These questions were refined further to focus this element of the study on:

- The extent of use of different IPW models for older people with complex needs, outcome measures used and organisational definitions of effectiveness,
- The perceived influence of contextual structural and operational factors on definitions and measures of effectiveness,
- The extent to which commissioning, quality scrutiny, accountability and shared infrastructure mechanisms contributed to effectiveness,
- The measures of effectiveness that incorporated users' and carers' definitions.

It was also intended that this part of the study could identify sites of interest for possible recruitment to the second, prospective case study phase.

4.2 Method

4.2.1 Survey

An online survey tool was developed for managers with responsibility for older people's services in PCTs and LAs. The questionnaire's content was informed by three sources of information: findings from the systematic review, relevant theoretical literature on IPW (e.g. (138) (139)); and findings from in-depth interviews with ten selected managers/team leaders whose work focused on older people, working in five NHS and LA adult services and two voluntary or third sector organisations. These combined sources provided an overview of the evidence of effectiveness for IPW, identification of a range of IPW models, and clarification of the language commonly used in practice across health and social care services.

Between April and May 2009, exploratory interviews were undertaken with managers and practitioner members of IPW groups/teams. Interviewees from the PCTs/LAs included managers from NHS outreach services, adult social care services, intermediate and continuing care services, housing services and practitioners working in rehabilitation/re-enablement teams.

The qualitative data provided a focus for the survey questions and helped to identify the different service configurations and patterns of working involved in IPW for older people. For example, they explored whether people met face-to-face or used shared IT and referral systems to support IPW. They also underlined that certain 'models' of IPW were fluid and subject to change within organisations and that roles within IPW (e.g. care/case manager) were interpreted broadly. When these findings were reported to the study Advisory Group during the questionnaire development period, Group members advocated additional methods to support the development and supplement the data collected. A documentary analysis of local area strategies was therefore undertaken, which would complement the evidence from the questionnaire findings.

The online survey contained 17 questions (Appendix 1). These covered the range of services for older people that involved IPW and how IPW was organised. Respondents were then asked to identify the two services involving IPW that they knew most about and answer more detailed questions about these. The questions addressed organisation and management of IPW, professionals involved, and sought information on patterns of referral and communication, resources used, outcome measures and user involvement in service evaluation. Finally, respondents were asked about the impact and contribution of IPW and how it was evaluated in their organisation. The questionnaire was piloted with twenty health and social care frontline professionals and managers. Following their input, the survey was simplified and more questions were included that could offer the option of free text replies. The survey took 15 to 20 minutes to complete.

4.2.2 Sample

The target population for the survey was managers with operational responsibilities for the provision of services to community-dwelling older people in the 152 Councils with Adult Social Services Responsibilities (CASSRs) and 150 NHS PCTs in England. At the time of the study PCTs were responsible for both the local area NHS budget (commissioned both primary and secondary care) and also the provision of community health services (free at the point of delivery) in 'provider' arms of their organisations.

Identification and introductions to relevant managers were facilitated through the Association of Directors of Adult Social Services (ADASS) and the eight regional offices of the National Institute for Health Research (NIHR) Primary Care Research Network.

The survey protocol was reviewed and approved by the University of Hertfordshire health and social care research ethics committee. The National Research Ethics Service (NRES) judged the survey to be a service evaluation.

4.2.3 Analysis

All survey responses, including incomplete responses, were collated. Respondents did not answer all fields, so the total number of responses for some questions varied. Descriptive statistics were used to summarise the survey results. Free text responses were analysed using content analysis.

4.3 Local Strategy Review

The aim of this element of the study was to investigate the range of structures and practice in IPW supporting for older adults living at home in England. The specific research objectives were to:

- Explore the range of language used to describe IPW as utilised in local strategies between organisations, at service level and at professional/ Service user level.
- To identify the range of approaches, objectives, mechanisms, commissioning, and performance measures the different organisations use to achieve IPW for older adults with complex and multiple needs for support and care.

4.3.1 Method

A documentary analysis research approach (140) was used. In relation to the subject area, such an approach had been used in a review of Strategies for Black and Minority Ethnic Older People (141) and in a review of rural dimensions in Joint Strategic Needs Assessments (142). A process similar to that of a systematic review was employed (143) including: document retrieval, review and scrutiny by more than one researcher, information retrieval using a data extraction sheet, and subsequent analysis against the research objectives. Public domain, published and current Local Area Joint Older People's Strategies, were sought using Google search engine on the internet across nine governmental regions. Terms such as 'older people joint strategy', 'older people strategy', 'older adult strategy', 'joint commissioning for older people', and 'joint commissioning' were utilised on the search engine to identify documents from across the country. On the advice of the study Advisory Group searches were subsequently made for strategies for older people with mental health problems and carers' strategies. We aimed to obtain up to five strategies from each government region in England i.e. 45 documents. Additional email requests were made to named individuals from whom the documents could be obtained if there was not an electronic version available. Each document was read and explored to extract data which included information about:

- The language of IPW between organisations, services and at the professional/Service user level.
- The identified types and mechanisms of IPW at organisation, service and Service user level for older adults who require support and care from health and social care services or funding from these sources.
- Performance targets and any Service user outcomes.
- Evidence of Service user input on evaluation and performance monitoring.

Excluded documents: Information related to services, commissioning and plans for healthy ageing, general wellbeing or social inclusion were excluded if it was not targeted at people using health and social care services.

The extracted information was then recorded in two data extraction tables. The first table analysed the interprofessional working language used by health and social care professionals at the professional / Service user level, the service level, and between organisations. The second table recorded IPW at the different levels of the organisation. These were: a) the superstructure of the organisational level, b) the contracting and commissioning level, c) the service provider organisational level and d) the professional / front-line staff /Service user contact level.

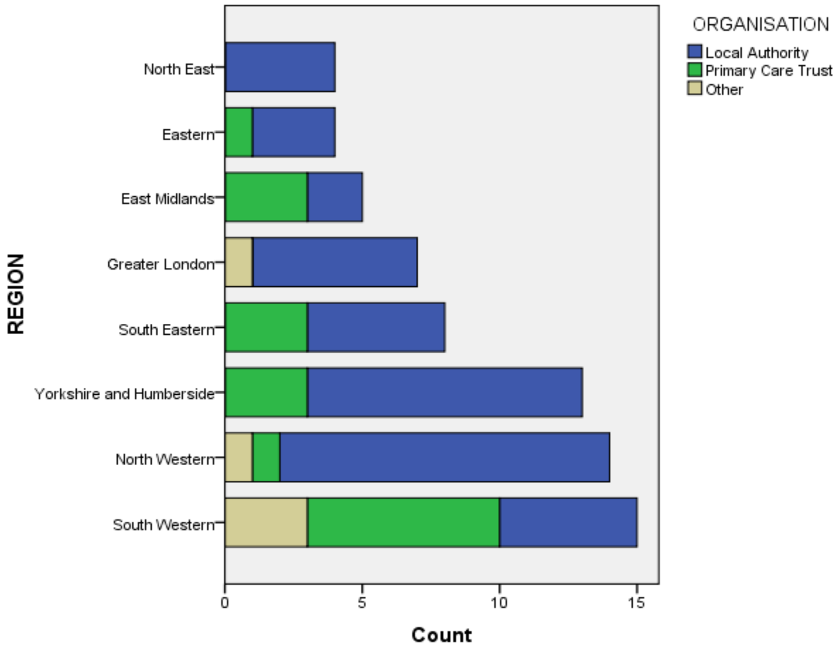
Glasby (144) has suggested that there are three levels to such documents: structural, organisational, and individual. However from reading these documents it seemed more appropriate to use four levels, in order to be explicit about the commissioning function in NHS and LA services.

The findings from the survey and documentary review, detailed below, are organised to reflect the common themes that arose from the two data sources. Appendix 10 provides further information on responses to specific survey questions and themes in the documentary review. The following section starts by reporting on the survey findings.

4.4 Findings

The online survey was circulated to health and social care professionals/managers in 292 organisations (142 LAs, 150 PCTs). There were 91 responses from these organisations, a response rate of 31%. Figure 10 summarises the pattern of response.

Figure 8 Organisation survey response by regional location



A total of 59 documents were identified. Of these, 50 - representing a diversity of geography, socio-demographic profile and topic - were analysed. Table 3 illustrates the geographical coverage of the survey.

Table 3 Regional spread of strategic documents examined

Government Region	Documents Identified
East Midlands	5
East England	4
London	6
North East	6
North West	6
South East	5
South West	5
West Midlands	9
Yorkshire and the Humber	4
Total	50

4.4.1 Overarching structures

One difference in the overarching structures could be discerned from the proportion of strategies that were not published as joint documents with any other organisations. Thirteen of the documents were published in the name of the Local Authority alone, although each stated that consultation had occurred with relevant other organisations, such as Primary Care Trusts. However, all documents reflected the central government requirements for strategic partnerships, local area agreements (LAA) and performance targets under the Comprehensive Area Agreements (Department of Communities and Local Government 2006).

Some strategies explicitly referred to Health Act 2006flexibilities being used but primarily this occurred in reference to pooled budgets for a specific service e.g. Joint (LA & PCT) community equipment stores. All documents referred to direct payment schemes and the policy of personalisation to increase autonomy and choice for people using services and their carers.

4.4.2 Macro-organisational structures/mechanisms to support IPW

In most documents, joint commissioning strategies and joint commissioning groups were the most frequently mentioned mechanism for ‘partnership’ between organisations. However, a number indicated that they were still planning to work towards this joint activity.

Some areas reported joint posts as a mechanism for integration; examples included Directors of Public Health, some commissioning posts for both health and social care for older adults, and some joint service managers. Joint service managers were a particular feature of mental health services for older people.

Health Act 2006 flexibilities were being used for joint equipment stores and multi disciplinary community mental health teams but other examples found were for the joint commission of a bathing service and a joint health and social care team for collaborative care. It was also the basis for lead commissioning agency agreements, most notably for adult health and social care, but also specific elements such as the nursing care element in care homes.

Joint planning/provider groups were also frequently cited – often in relation to the task of creating joint integrated pathways or integrated service models to commission. The most frequently mentioned integrated pathways were Falls Pathways. Only one document described multiple pathways for the health and social care of older people.

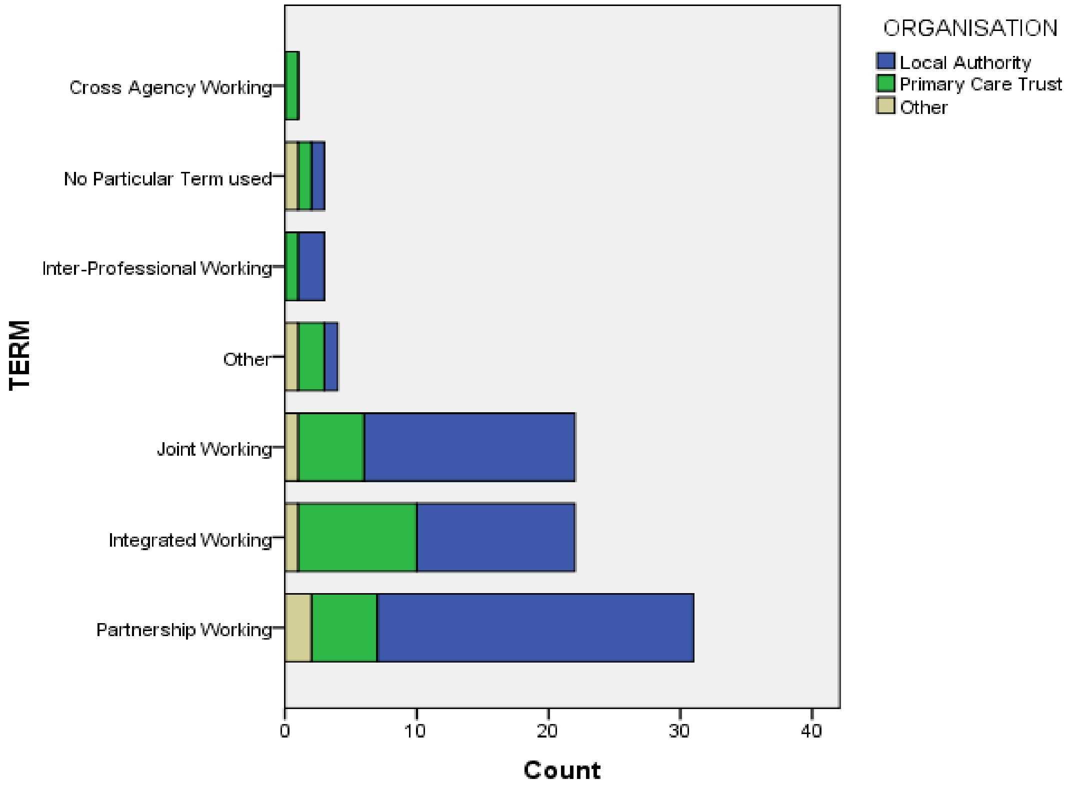
4.4.3 Language and Definitions of Interprofessional Working

The term ‘interprofessional working’, although widely used in the academic literature, was not recognised or used in the survey responses or documents reviewed. There was a hierarchy of definitions of terms surrounding what we defined to be IPW within organisations. Key phrases and terms were used to differentiate between IPW at different levels. These were not transferable across organisations but there seemed to be an internal logic to how key phrases and terms were used by different organisations and managers.

In strategy documents, the term used to capture IPW at an organisational and service level most frequently was ‘partnership working’. In contrast, the term used most frequently in the description of IPW at professional and Service user level was ‘joined up services’. This was apparent even though other terms could also be used such as ‘joined up working’, ‘joined up services’, ‘joint working’, ‘integrated working’, ‘multi-agency working’, ‘multi-disciplinary working’ and ‘integrated health and social care’.

This finding was echoed in the survey responses about how IPW was defined within organisations. There was no consensus that different phrases or terms referred to specific levels of IPW organisation. NHS respondents tended to favour the term ‘integrated working’, whilst social care respondents used the term ‘partnership working’. Figure 11 summarises the range of terms used by organisations to capture IPW for older people.

Figure 9 Range of terms listed in survey to describe IPW by organisation



However, it was the free text responses that highlighted the differences in emphasis. It appeared that structural and cultural processes within an organisation could give rise to different terms being used to differentiate how IPW was understood in (but not between) organisations:

'Seems to be different terminology depending [sic] on where staff are in the organisation - senior managers talk about integrated / aligned care, staff at front line talk about partnership working' (PCT manager)

As well as influencing how IPW was organised, legislation (section 75 agreements under the Health and Social Care Flexibilities of the NHS Act 2006 (originally S31 of the Health Act 1999)) was informing how different terms relating to IPW were being used. A manager of LA Adult Social Care Services identified internal consistency in how IPW was described within her organisation, but, in contrast to the above PCT manager quoted, made reference to 'partnership' as meaning strategic working and 'joint working' as meaning service delivery:

'There is more than one term used pending the circumstances. For strategic commissioning we tend to use "partnership" or collaborative'. For

operations the most used terms are '' joint'' or ''integrated''. Sometimes the legal status of the arrangement will determine the word used for example with section 75 agreements.' (LA manager)

The survey responses and internal consistency of language in the documents reviewed suggested there was some precision in how IPW services were represented for older people. This was applicable at the level of organisation of IPW, even if the terms used were not transferable and were site specific. However, as one respondent observed, language could be very fluid. New initiatives, such as the proposed introduction of social enterprises, meant that modifications in the language or terminology attempted to capture how this form of IPW might differ from what had gone before:

'We also use the term collaborative particularly around End of Life care where some multi-agencies may merge into a social enterprise' (PCT manager)

4.4.4 Range of services identified reliant on IPW and organisations involved

Most of the strategies analysed reported current or planned joint or integrated services for the same types of function. This included the creation of a single point for information on health and LA services (to improve uptake of services) or the creation of single points of access to publicly funded services (excluding General Practice). Some highlighted the introduction of shared assessment and core electronic records. Joint or integrated teams existed in most areas. It was not always clear if this meant a variety of health professionals or included LA professionals, such as social workers and LA occupational therapists.

The types of teams most frequently referenced in both the documentary review and the survey were: intermediate care, rapid response, collaborative care teams, re-enablement/ community rehabilitation teams and those designed to address a specific need such as falls prevention teams, stroke rehabilitation, early diagnosis and intervention teams for mental health problems, and end of life care.

In the survey, Community Services for Older People (97%) was the service most frequently identified as involving NHS and LA professionals working together. This referred to situations when health and social care professionals were jointly involved in the assessment and provision of ongoing care and support to older people living at home. Often this would involve the organisation of home care support, provision of aids for living and equipment, and therapist and community nursing involvement. This, however, was not the model of IPW that managers chose to describe in detail and was not referred to in the strategies reviewed. Other IPW services identified by more than half of the survey respondents were problem or disease specific. Only eight managers identified Tele-care (or involvement in assistive technologies) as a mechanism to support IPW.

In the survey respondents were asked to distinguish between services that were reliant on IPW and those that required intermittent involvement by various professionals. IPW was always identified as a component of six discrete services for older people (Table 4). In contrast, disease-specific (e.g. Chronic Obstructive Pulmonary Disease and Cardiac Rehabilitation) services that catered mainly for older people, were reported to be the least likely to rely on different professionals working together.

Table 4 Services identified as always reliant on IPW

Intermediate Care
Stroke Rehabilitation
Continuing Care
Community Services for Older People
Rapid Response Service
Re-enablement Teams
Falls Prevention

4.4.5 Intermediate Care

The findings from both the review and the survey suggest that intermediate care is a universally recognised model of IPW that represents an embedded service across almost all NHS and LA organisations in England. This was the only model of care where certain mechanisms that supported IPW were consistently identified as being in place (i.e. agreed entry criteria, shared assessments, shared protocols, social care funding) but equally there was considerable variation in patterns of service delivery, location of care and numbers and types of professionals involved.

4.4.6 Evaluating effectiveness

All documents or strategies reviewed reported consultation with older people in their development. None mentioned any specific plans for evaluation of IPW services, involving older people in performance review or what indicators might suggest if IPW was effective.

In the survey 42 (79%) respondents reported that their organisations undertook evaluations of IPW. The method most often used for evaluation was questionnaire based surveys (n=20; 49%). Very few respondents reported built-in feedback systems (4) or organised discussions with user representatives (6). When asked to select between a range of indicators (reliability, continuity, access, no duplication, no conflict between professionals) there was no consensus about the best indicators of IPW.

The survey asked respondents to rate a series of statements on a Likert scale (see Appendix 10)that drew on the work of Leutz (8, 20, 55) and allowed them to make critical assessments of IPW. Sample sizes were small and not all respondents completed all of the questions, so it is not possible to draw out any differences in rating perceptions between LA and NHS managers. However, it is possible to gain a sense of the importance and contribution of IPW. Some authors have suggested that there is a growing disillusionment with the rhetoric of IPW and partnership working (145). At service delivery level very few managers agreed with the critical statements that IPW creates more fragmentation or is an expensive way of supporting older people. Opinion was divided on the question of whether informal working practices were more effective than formal work structures and if professionals could adapt their working practices to fit in with other professionals.

4.5 Discussion

The survey and documentary review revealed support for the concepts of IPW across NHS and LA professionals and managers. Findings consistently showed:

- IPW language as context dependent.
- The short-term focus and funding resources of many interprofessional service delivery models.
- The limited evaluation of interprofessional and integrated services or inclusion of the perspectives of older people and their carers.

The term ' interprofessional working', despite its widespread use in the academic literature, was not used in organisational documents at strategic level or by managers. IPW encompasses a wide range of approaches to working across disciplines and agencies. Others have offered hierarchies of meanings and critiques of IPW that could help organisations structure and evaluate IPW (e.g. (20) and (146)). A key finding of was that organisations created, over time, their own hierarchies or taxonomies of IPW. These were known to their members but not necessarily to those outside the organisation.

There was greatest clarity over definition when IPW was shaped by funding streams together with the new policies and shared understanding of words and phrases that were tied to legal and financial agreements. With the increase in the use of personal budgets and near universal commissioning of third sector and commercial providers to replace LA services provided directly in England it is likely that the language of IPW will become even more imprecise, diverse and context specific. The need for precision in the terms used to describe IPW may not be as important as shared identification of user and patient outcomes that arise from IPW and what kind of IPW model of working achieves what kind of outcomes.

In both the survey and the document review details about IPW for older people were provided covering a narrow range of time-limited, problem-specific services, with intermediate care services the most frequently identified model of IPW. Least was known about the impact of IPW for those older people, who, once they are in receipt of services, will have ongoing and changing needs that may draw on more than one model of IPW. Services that had a more open-ended commitment to the care of older people and more diffuse goals did not feature as services of interest in the documentary review or the survey.

The findings suggest that a commitment to providing outcomes-focused services for older people is seldom carried into long-term home care services (147) although as the survey was only sent to NHS and LAs, it did not seek the views of home care providers who are concentrated in the private sector. Furthermore, even when there are desired outcomes, the Audit Commission (2009) found that formal funding arrangements to support IPW made little or no impact on reducing the number of older people who experienced adverse events, or on the length of time they spend in hospital for some common conditions.

There was reference to user involvement in the development and planning of IPW based services in the documents reviewed. However, we found no evidence of Service user-defined outcomes or examples of Service user involvement in evaluation of different IPW models of care. It was difficult to establish how services that did not have a single issue/disease focus were organised, if there were shared accountability structures or how the effectiveness of IPW was defined across organisations. Despite our best efforts, it was very difficult to identify who was best placed to describe IPW for older people even when taking account of the need for this to be spread between managers. Respondents spoke of the value of clear leadership for IPW, but, as not all respondents completed the survey, this could suggest that respondents did not have a clear framework for thinking about IPW. There was no consensus about mechanisms that supported IPW, indicators of effectiveness or the benefit of formal methods of IPW over informal practices that had developed over time.

4.5.1 Limitations

The survey findings are limited by the response rate. The rates was comparable with other similar surveys (148), and in this case it may have been affected by the fact that many potential respondents were engaged in the management of substantial organisational change. Furthermore, the problem of partial completion of online surveys has been documented by others reporting on IPW /partnership working in health and social care (148, 149). Nevertheless, had study resources allowed it, more rigorous follow-up may have increase the response rate and enhanced the credibility of the survey's findings.

The documentary analysis may have failed to access relevant material, particularly that which was not in the public domain. There was some level of agreement between the findings of the documentary review and the survey, and this suggests that the range and scope of services that involves IPW for older people living at home were captured.

4.6 Conclusion

The survey and documentary review explored how IPW for older people was represented, delivered and evaluated at organisational and professional levels. At the point of service delivery, respondents were unable to comment on the detail or measures of effectiveness of IPW. This illustrates the complex mix of allegiances and contexts of care that influences how IPW is achieved at different levels of service delivery (145). At the patient or Service user level of IPW, questions of what effectiveness might look like and when it was articulated were framed by organisational preoccupations about resource use, rather than patient or user expectations.

The findings suggest there is a need to understand how different models of service delivery for older people living at home co-exist within the health and social care economy. The development of outcome measures that measure the impact of different service models of IPW on their recipients would enable service providers to differentiate between their long term and short term benefits and the effectiveness of one model of working over another. It demonstrates the need to focus more on the impact of IPW over time on recognised user specific outcomes (e.g. access to care, continuity of information, improved function, levels of frailty, and so on).

5 Service user and carer perspectives on outcomes of Interprofessional Working for older people

5.1 Introduction

This chapter addresses the overarching aim of developing user-defined outcomes of interprofessional working (IPW) and in particular Question 2 of the study i.e. How do community-dwelling older people with multiple needs, and their carers, perceive and define effective interprofessional working across health and social care services, and can this inform the development of user-defined outcome measures of effectiveness for interprofessional working in primary and social care?

The systematic review and to a lesser extent, the national survey and review of local strategies, identified some user-specific outcomes of IPW (e.g. patient satisfaction, carer wellbeing). The majority however, did not differentiate between the process of IPW and the chosen intervention and state whether this affected user-defined outcomes. Nor was the survey able to capture the perspective of the voluntary sector in its potential roles of service provider and user representative. To refine our understanding and develop user-defined measures of effectiveness that could be used in the case study phase we undertook:

- Interviews with Service users and their carers.
- Interviews with lead staff in voluntary sector organisations which represent and /or provide services for older people with long term and ongoing needs.
- A consensus event of Service users and their representatives on what defined effective IPW.

The data from the interviews complemented the survey, and review findings provided recent detailed accounts of the experience of IPW that were used to inform discussion at the consensus event.

5.2 Methods

5.2.1 Recruitment

Participants for the interviews with Service users and their carers were purposively sampled from a LA older adults' development consultation group, a stroke support group, two local carers' organisations, and older people from a LinKs (NHS consultation and representation) network.

Included participants were over 65 years and had experience within the last six months - either as a user or as a carer - of more than one health and/or health and social care service. The interviews were thematically analysed.

5.2.2 Interviews with Service users and user representative group members

In semi-structured face-to-face interviews, participants were asked why they were receiving health and social care services, to identify the range of professionals and services involved, and to explain how they had first accessed these services. Accounts were then elicited of experiences of health and social care staff and services working together, and of the criteria and outcomes respondents used to judge whether these were effective. During the interview, participants were encouraged to 'unpack' which aspects of IPW were effective and which were poor (Appendix 2).

The leads of seven third sector organisations providing services to people aged over sixty were also interviewed face-to-face. The organisations were local branches of Age UK (formerly Age Concern) and the Alzheimer's Society, Better Government for Older People, carer support groups and an Asian elders support group. They were asked about how they understood interprofessional working and what criteria they used to judge its effectiveness for meeting the needs of older adults. Interviews explored the types of services they considered were likely to require IPW with health and social care services or to be part of an 'integrated' or 'joined up' response to older people's needs. Interviews were recorded, transcribed and analysed thematically.

5.2.3 Consensus event

Group facilitation techniques that aim to synthesise and clarify opinion to obtain a consensus are often preferable to individual judgements because they are more consistent and less prone to personal biases (150). The consensus event (CE) used the findings of Phase One (review, survey, documentary review and patient and third sector interviews) to inform the development of user derived outcomes of IPW that were meaningful to older people, family carers and their representatives.

The Public Involvement in Research Group (PIRG) was key in the development and planning of the CE. The PIRG is composed of mainly retired people who are knowledgeable about health and social care services either through personal or family experience. Members hold honorary contracts with the University of Hertfordshire and have participated in training designed to equip them to be informed and confident participants in the research process (151).

Prior to the CE, three planning meetings were held involving seven PIRG members (all retired), who were self-selected, and four members of the research team. These meetings established the desired profile of those to be invited to the CE, the format of the event, and how the PIRG members would facilitate group discussions on the day. The process helped to ensure clarity and consistency in the language used, provided an opportunity to distil the key messages derived from Phase One, and helped outline an effective presentational style.

Four vignettes were developed from the interviews with older people about their experiences of IPW (see Appendix 3). Using different formats, the vignettes were a method to focus discussion on what benchmarks of good practice might look like.

The day was organised into four discrete activities (see Appendix 4 for the event agenda and Appendix 5 for the visual presentation used in the event).

Participants were not recruited through the NHS, and a favourable ethical opinion was provided by the University of Hertfordshire Research Committee (NMSCC/03/09/10/A).

5.3 Findings from interviews

5.3.1 Interviews with users and carers

Eighteen older people were interviewed (12 women, 6 men). All were over the age of 65, three were the main Service users and 13 were relatives of someone unable to participate either because of their condition, or resident elsewhere (care home or hospital) or had recently died. The three Service users had a wide range of long term conditions including stroke, dementia, Parkinson’s disease, Alzheimer’s disease, cancer, rheumatoid arthritis, anaemia, emphysema and chronic obstructive pulmonary disease (COPD). Together with their family carers, they reported the use and involvement of a wide range of statutory and voluntary services.

5.3.2 IPW at points of transition

To discuss the effectiveness of IPW, most participants focused on narratives of crisis and transition, e.g. hospital admission, and subsequent discharge. Some identified smooth referral processes as evidence of effectiveness (e.g. referral to a hospice made by the oncologist). Nearly half the participants recounted examples of what they described as poor discharges from hospital to describe when IPW had not been effective. They cited omissions in services such as not receiving meals on wheels, lack of necessary equipment for both independence and/or being nursed e.g. suitable seats, beds, and medical equipment e.g. oxygen cylinders. Some participants felt that these types of omissions had led to rapid deterioration or even premature death. One example reported was of pressure on a person with dementia to leave hospital with no additional planning because the ward staff knew there was a family carer, although this carer worked full time.

5.3.3 Living at home with deteriorating conditions

There were accounts of different services working closely with users and carers and with each other to respond to changing needs. In this the following example a carer is citing how one professional, in this case a social worker, helped her so that she felt:

'*it was like having a friend hold your hand*.'

She described how her father had dementia and was finding it difficult to live at home. He had been assessed and moved into residential care specialising in the care of people with dementia. Key to her definition of effective IPW was that she felt she had received sufficient information, support and care from all the health and social care professionals involved in her father's care. Similarly, a few participants were able to recount their sense of being involved in decision making.

Participants valued being put in contact with local third sector organisations, being actively introduced and thereby linked to a network that provided ongoing support. One participant described a social worker making a referral to Crossroads for specific services; Crossroads in turn referred the Service user to Age Concern. Age Concern then undertook a benefit check, and gave information on coping with their condition and legal advice. Interestingly, the carer did not think that the social worker or any NHS professional should have reviewed her access to financial support.

5.3.4 Role of key professionals in IPW

Some participants pointed to difficulties with particular professional groups that, if they were not involved with their care, could preclude effective working between services. If the GP was not involved, for example, this was seen as problematic and seemed more likely to happen once a long-term condition, such as dementia, had been diagnosed. One carer regretted that the GP appeared to step back from participation in the care of her husband:

'She [GP] didn't get involved at all. She said, she actually said to me, 'oh, I, you know, appreciate how difficult all of this is for you but, you know, we do find once people are in hospital it's better to leave it to the hospital staff'. She just was not involved at all and wouldn't get involved.'

Vacancy levels and turnover of the workforce were important in planning and co-ordinating IPW. One participant described that seven social workers had been involved at different stages of her husband's illness.

5.3.5 Services delivered in the home

When discussing IPW over time, the main area of IPW that participants raised concerns about was the working relationships between district nurses and the home care workers (in most cases home care workers were employed by private sector businesses). Effective working in these situations emerged when information was shared (preferably with documents kept in the home), when matters of concern were shared (e.g. changes in a person's condition), when services were reliable and supportive, and care workers were consistent. For one older person the constant change in home care workers left her feeling unhappy for example being undressed in front of strangers everyday for a wash was *'undignifying'*.

Disputes between professionals about what was and was not NHS or social care, left older people and their carers confused and frustrated about who was responsible for different aspects of care:

'The Social Services, they say "oh well, that's a health problem" the health professional says "well, the depression and the isolation is a social problem" and things like that, they just can't see that one has a knock-on effect.'

5.3.6 Identifying Indicators or Benchmarks of IPW

Participants could describe the process of IPW but found it difficult to say what would be a marker or indicator of effective IPW. Participants tended to focus on points of transition in someone's life or when the need for help, care and /or treatment escalated. The examples participants gave were often service process benchmarks, e.g. continuity and consistency of services, timely communication and follow up between services, and appropriate, respectful delivery of service. If these were in place then the outcomes were good.

5.3.7 Interviews with user representative organisations

Seven face-to-face interviews were conducted with lead staff in third sector organisations providing services to people aged over 60 years. Their organisations covered single LA areas, multiple LA areas and five counties. The services they provided ranged from exercise classes, adult education classes, drop-in luncheon clubs, social events, information/advice and case worker services, to befriending schemes, advocacy support for older people receiving direct payments and home care for older adults with mental health problems. All were concerned about the future for their organisations in the light of LA reviews of funding and potential loss of contracts and grant aid.

As with the interviews with older people and their representatives, key points for IPW were those that supported older people at a point of transition or point of difficulty, e.g. supporting someone after discharge from hospital or providing a handyperson service so something could be adjusted at home to enable the person to be discharged from hospital. Effective IPW was defined by the strength of the relationship between professionals/staff in their organisations and those in health and social care services.

All reported their main relationships as being with LA staff rather than staff from the NHS. This reflected the source of their funding grants and contracts. LAs were also reported as more active in engaging other organisations in consultations than NHS services. Apart from contractual relationships, participants did not describe frameworks or structures that could help foster or sustain relationships across health and social care. Some organisations were currently contracting with PCTs to provide some services (usually short-term services e.g. an advice worker working with GP surgeries), but all reported spontaneously that it was difficult to engage with those involved in commissioning.

There were few suggestions as to how one would judge if IPW was effective or not for the older person. One suggestion was there would no longer be '*squabbles'* between health and social care professionals as to whether the care would be paid for /delivered by someone from the NHS or someone paid for by the LA. Third sector participants did not believe they could influence or shape how they worked with the statutory sector. It was not a narrative of reciprocal working undertaken on behalf of the older person.

5.4 Findings from the Consensus Event

5.4.1 IPW 'professional time' versus 'user need'

Twenty one participants and the research team were present at this event.

Timing of IPW was a dominant theme. Discussion throughout the day focused on whether certain outcomes were always important or if priorities changed over time (for example, knowing who was co-ordinating care) and how older people and their carers might judge if they were being achieved or not. A measure of effectiveness was how accessible services were at different times of the day and over the different stages of ill-health. This referred to whether service availability fitted with Service user definitions of the right time i.e. when problems occurred outside normal Monday - Friday working hours. Linked to this was the need to know if different professionals involved met together to review and plan care, preferably with users and carers present.

Participants felt that the presence of a written agreement between the user, the carer and the professionals was evidence of 'good' IPW. The document should set out what was wanted, what was possible, the professionals involved and when they would visit. All agreed that it should be a basic requirement that all involved '*knew the full story*' (i.e. the Service user's and carer's previous service use and related health and social care needs). This could be used as an indicator of effective IPW.

For many participants the limits of professional time (short visits and lack of overlap) limited the effectiveness of care because continuity and communication between key players from voluntary sector and statutory sector were often restricted.

As an overall reflection on the proposed plan for data collection in Phase Two, the conclusions of the event were summarised as:

'The consensus was that the case study phase needed to consider the impact of IPW at different times of the Service user's day, the timing of care can be as significant as what kind of service is provided and by whom.'

5.4.2 Themes from the discussion of what the stories revealed about IPW

The use of vignettes (Appendix 3) was a valuable device to help participants focus on issues that might suggest whether IPW care was effective or not. Participants were split into three pre-allocated groups. The PIRG facilitators encouraged participants to use the stories (as informed by their own experiences) to discuss what it was about the detail of the events that informed their judgements about whether the IPW described was effective or not. Members of the research team took notes and acted as scribes for the groups. A review of the flip chart notes collected from the afternoon session identified five interrelated themes that were common across all four illustrative stories:

- Communication
- Control and choice

- Coordination of care
- Confidence in care
- Carer engagement

Communication: Issues of communication related to questions of whether all those providing care knew the full story and shared a common language that the user could understand. Measures of effectiveness included:

- Do the user and their carer feel listened to?
- Can they initiate communications with different services?
- Do they feel informed?
- Is there written supporting information?

Threaded through this discussion was a recurring theme about the sensitivities and importance of timing within effective communication in IPW for the user and carer. This was identified as particularly important at key points of vulnerability and confusion.

Control: Participants agreed that being able to decide which and how many professionals and services visited were important indicators of effective IPW. They observed there was often an imbalance with some services being more useful and effective than others but they could not always influence which professional visited. Interestingly, it was equally important that users and carers could choose to hand over control at key points (for example, when they were too ill or tired) to a professional they trusted.

Coordination of care Participants were experienced users of health and social care services and they recognised that IPW falls apart when there is poor coordination. Meaningful indicators of effectiveness were: that a user could name their key worker, that it was clear who was linking the user and the carer into a wider network of care, and that this person could be their advocate if needed. A pragmatic observation from one group was that within IPW there was a need from someone who '*Provides a 'bridge' between what the system can offer and actual user needs'.*

Confidence in care This theme linked to choice and control and the importance of relationships but also covered issues such as the timeliness of care, certainty that services would be able to respond and would have the flexibility to provide access to a range of skills and services that matched need (i.e. not a standardised service).

Carer engagement Partly because of the group composition, the needs of carers and how they encounter IPW were a recurrent theme. All discussion groups argued that it was important to look at effectiveness of IPW (communication, control and choice, coordination and confidence in care) from the two perspectives of user and carer.

Within the group discussion participants were unsure how they could assess whether a user or their carer had the right mix of professional care. Most saw that it was important for professionals to review users' needs at each stage of the care process. The researchers asked what would the consequences of effective IPW look like? Participants suggested:

- The user is relaxed
- The user is not depressed
- The user is less anxious than they were prior to receiving services
- The user gets the outcome they wanted and is part of the decision making process (e.g. wishing to die at home).
- Carers are happy with their role and outcomes of care
- Carers are acknowledged and supported by services and their needs are addressed
- Carers do not have regrets about services received once their loved one has died
- When there is evidence of clear leadership within IPW
- When there is evidence of a negotiated care plan and proactive/timely care.

The last hour of discussion intended for drawing together of themes was curtailed by a fire alarm and evacuation of the room. Despite this interruption, the discussion and emerging consensus suggest that for the participants, effectiveness was inextricably linked with the process and timing of care, together with their perceptions of the importance of a relationship with key professionals and service responsiveness.

The following questions were developed subsequently by the research team as the basis of the interview guides with users and carers in Phase Two. These questions were circulated for comment to the participants in the weeks after the consensus event:

- Were you aware of the services available to you?
- Was provision timely?
- Was there clarity about the limitations of the services that could be offered?
- What choices were open to you?
- Were there services you did not receive that you think could have improved the quality of care?
- Was the offer realistic – or were you promised services that did not happen?
- Did you have access to clear information – both written and verbal?
- Did the service change how you felt (e.g. remove feeling of terror at living at home after a hip operation)?
- Were the service providers enthusiastic?

5.5 Discussion

The findings of this consultation with Service users, carers and their representatives echo the findings of Freeman (152)and Parker *et al*.'s (153) subsequent synthesis and reworking of a conceptual understanding of continuity as applied to different patient groups. Particularly relevant is Parker *et al*.'s conclusion that very often it is the process of care that becomes the outcome. Participants found it challenging to disentangle the experience of IPW from its impact but were clear what components of the process led to a good or bad outcome.

It was striking that users and carers both in individual interviews and as part of the consensus event, stressed the significance of when IPW was provided as well as how and by whom. Moments of crisis or transition could change what effective IPW might look like. This definition of effectiveness was predicated on an assumption that different professionals/services could be flexible, especially in situations when the user or their carer was either too ill or too tired to take the lead. The findings reinforced the value of tracking the support users and their carers receive over time and provided an additional impetus to consider the different configurations of IPW at key points or events.

5.6 Conclusion

The interviews and consensus event described in this chapter demonstrate that valued outcomes from IPW might differ for those in periods of stability from those at points of transition and change. The findings suggest some characteristics of effective IPW and that process outcomes and relationship behaviours might be as important as the end points. This is perhaps unsurprising in a population where engagement with services and individual practitioners is often over long periods of time.

The findings from this element of the study fed into the case studies that comprised Phase Two of this investigation, which is the subject of the next two chapters.

6 Phase 2: The Case Studies

This chapter describes the case study methodology, the sites selected, characteristics of study participants, service utilisation and costs, evidence of improvement or decline in health, and the involvement of different health and social care services over a nine month period. It compares the expectations of older people and their carers across the different IPW models, how this influenced their definitions of effectiveness and how the processes of IPW supported or inhibited continuity of care and integrated working across multiple organisations. The chapter ends by considering professionals' accounts of what effectiveness looks like in IPW, the mechanisms that support it, and the relative costs of the different models.

6.1 Methods

The methodology for Phase Two drew on a nested comparative case study framework (154). Three pairs of case study sites (n=6) were investigated, with each pair selected for having one of the three models of IPW across health and social care that had been identified in Phase One. These were:

1. Case Management - IPW is organised around a case manager.
2. Integrated team - health and social care professionals form a specific team working with a pooled and shared budget and defined functions;
3. Collaboration - professionals working in loose associations to support the older person with complex needs over time;

Case study sites represented a diversity of geography, population, and levels of structural integration in health and social care economies. Identification and recruitment of the sites and their multi-professional teams were informed by the findings of the survey in Phase One, expressions of interest to participate in further research received during the survey, the opportunities for comparison and learning, and the presence of local implementation of policy initiatives current at the time. This work is described in Chapter 6.

6.1.1 The Recruitment Processes

We aimed to recruit 3-5 professionals at each site, and through them to recruit the last 15 Service users referred to the IPW group at that site. From our previous research (155) we knew this would spread the recruitment activity and help preserve the anonymity of individual professionals in the analysis. Recruitment was undertaken through meetings with groups of health and social care professionals organised by their managers. Information about the study and the commitment involved was provided, and the professionals were invited to participate.

To ensure that Service users and their carers did not feel coerced to participate by those involved in their care, we asked the professional only to identify eligible participants as defined by the study criteria and to provide them with a brief information sheet about the study. The criteria for inclusion were: recently joined the caseload, capacity to understand and consent to participate in the study, and expected to be on the caseload for the coming year. Individuals were not approached if, in the judgement of the professional, they had a mental health problem (not caused by the ageing process), were terminally ill or did not have capacity to consent in the moment (156).

Service users interested in participating in the study were asked either to return a reply slip in a pre-paid envelope or to telephone or email the research team to indicate they were happy to discuss possible involvement with a member of the team. The Service user was then provided with Participant Information Sheet and a consent form, and given 48 hours to consider the information before further contact by a researcher. It was made clear from the start that the decision whether to take part in the study was entirely voluntary and would not affect their care in any way. At every stage verbal consent to continue was obtained and the opportunity offered to defer or shorten the time for involvement in the study.

Once a Service user had decided to participate in the study, they were asked if they had an informal carer, e.g. family member, who could also be approached to take part in the study. If so, they were provided with information about the study and given 48 hours to consider if they want to participate. It was stressed to both the older person and carer that the involvement of the carer was not to discuss or disclose any personal information about the Service user, but to enable the research team to understand how different models of IPW are understood by carers and how this contribution affects them and the care they provide.

6.1.2 Data collection

At each site, face-to-face semi-structured interviews using topic guides (140) were conducted with Service users, carers, professionals working with the users, and members of the IPW managerial team. Interviews were recorded, transcribed and analysed thematically (157). In addition, strategic operational and performance review documents were obtained and documentary review undertaken (158).

This study used a longitudinal qualitative design to capture the Service user's experience over time and at key events, identifying changes in narrative and interpretation of effectiveness as a recipient of IPW (159). This approach also enabled us to document frequency of contact with services, patterns of service provision, shifting priorities and the impact of any organisational change. Several data collection methods were used: including semi-structured interviews, observation, and validated instruments for assessing the health and social circumstances of the Service user. The data collection process with each type of informant is now described.

Service users. Assessments were conducted three times (T1, T2, T3) at roughly 20-week intervals over a period of nine months. The interview topic guide sought to establish their health and social care status, perceived wellbeing and needs, the care they received, from whom, and their experiences and perceived outcomes of IPW. At the first assessment (T1) a baseline picture of the Service user's health and social care needs was also established through validated measures, including quality of life (160) and frailty (161). In establishing the measure of frailty to be used, we reviewed those available and published a paper arguing that these may also be particularly suitable for evaluating the effectiveness of interprofessional working with community-dwelling older people (5). Frailty is a multi-dimensional construct that seeks to encompass the influence of multiple factors on the vulnerability of the individual to adverse outcomes. In principle, IPW should be well-placed to address these factors in a joined-up way. Various measures of frailty have been developed for a variety of purposes, including case identification and risk assessment, but its potential as an outcome measure has not been explored in detail. The Edmonton Frailty scale was selected for this study because it addresses a range of health and social care issues of interest in IPW, can be applied by non-specialists, and has been suggested as suitable to register change over time (161). These measures were repeated at the final assessment (T3).

Interviews at T2 and T3 used topic guides that focused on reviewing their experiences over the past 20 weeks, any changes in services received, and perceptions of IPW outcomes. At these interviews, the Service user was asked to identify the health or social care professional most closely involved with them at that time point. With their permission, the professional team approached this professional to interview at T2 and T3.

Family carers. Interviews were conducted at baseline (T1) and 9 months later (T3). The topic guide focused on the types of informal/unpaid care provided, and the effect of IPW on their carer, their wellbeing, and their relationship with the person they care for.

Health and social care professionals. Interviews were undertaken at T1 with the professional who introduced the service user to the research team. The topic guide focused on a) the extent and mechanisms of IPW for that person to achieve their care, support or treatment objectives and b) the professional's experience of IPW in their current post. This was repeated at T2 and T3, though in some cases this was not with the professional interviewed at T1 - this was particularly true for those Service users introduced through a time limited integrated team service. In addition to interviews, structured data were collected about the detail of services received. Two sources were used for this: the users and carers, and – with the user's permission - any notes, assessments, care plans and documents created through IPW .

The service-use inventory was based on the Client Service Receipt Inventory (162) but augmented with further detail. A comprehensive list of professionals and services was compiled spanning all sectors: primary and community (GP, practice, district and community nurse, specialist nurse, community matron, health care assistant, pharmacist, physiotherapist, therapy assistant, occupational therapist, speech and language therapist, dietician, intermediate care, chiropodist, dentist, optician, mental health consultant); hospital visits (outpatient, day hospital, A&E, inpatient); social care (social worker, care manager, day centre, meals on wheels, home care workers); and voluntary and private services. For primary and community services, a distinction was drawn between clinic consultations, home visits and telephone contact. Participants were asked to report their use of each item over the previous period: T1 (baseline) covered the three months prior to recruitment to the study; T2 and T3 covered the period since the previous interview. Paid social care was recorded on a one week basis, assuming the cycle of care would be repeated each week, and was calculated for the each period by multiplying by the number of weeks in the time period.

In addition to the client-specific data detailed above, more general information was sought regarding the structural, organisational and infrastructure mechanisms relevant to IPW effectiveness and outcomes for that particular site. In some cases this information was obtained from one of the professionals already identified; in others, it was provided by a senior staff member or manager with responsibility for the IPW model that was being evaluated.

6.1.3 Analytical synthesis

Interviews were recorded, transcribed and analysed through a thematic framework methodology (163) using NVivo software (QSR) an approach that Lewis has described using with qualitative longitudinal data (159). Documents were analysed through the same thematic framework (140). Statistical data from validated assessment tools, the Service user's account of services received, and the professional records covering service activities were analysed using SPSS software (IBM). In addition, the individual Service user's experience over time was analysed using visual plots generated through the Microsoft Visio software (Microsoft Office). These plots allow the multiple elements and variables in a complex case study to be illustrated, and so can facilitate analysis by enabling identification of patterns and potential links between elements.

The findings generated from the different elements were synthesised through two levels of analysis: 1) the model of the IPW and 2) cross-case comparisons investigating how the different contexts and mechanisms affect the outcomes for the Service user. To facilitate further comparison and the development of an explanatory model, analysis was then undertaken within and across sites. Data from the case studies were analysed to describe the features and impact of interprofessional and team working on outcomes.

6.1.5 Economic Evaluation

Consideration of the resource implications of different approaches to IPW was embedded in both phases of the study. Papers identified for the systematic review were appraised for evidence of the relative cost-effectiveness of different models. The national survey of IPW considered funding, incentives and resource drivers. In phase 2, health and social care services delivered by team members, voluntary sector utilisation, informal caring and self-management were documented and costed for individual Service users. The skill mix and relative contribution of different practitioners were compared across models and sites and related to outcomes using a cost consequences framework (164). This incorporated the perspectives of the health and social care service managers, Service users, carers, and practitioners.

User-level data were entered into SPSS for analysis, and service utilisation (number of contacts of individual items and group means) were compared between models at each time point and for the whole period. The range of services used by participants over the study period was calculated, and factors (patient characteristics and model of care) associated with the number of professionals and services accessed were explored. Costs (£,

2010) of services used were calculated by multiplying items of service use by nationally validated unit costs (Appendix 6).

6.1.6 Ethics and Research Governance

The Phase Two cases studies were approved by the Southampton & South West Hampshire NHS Research Ethics Committee, REC ref 09/H0502/127.

Research governance permissions were obtained from all the research governance offices for the NHS service provider organisations who were introducing the research team to Service users. During this process, the guidance changed regarding provision of research passports to researchers not employed by the NHS. The shortest time from the NHS managers agreeing to participate to the research team having all the requisite research governance paperwork in place was five months; the longest was eight months.

6.2 Results

6.2.1 Case study sites

This section provides contextual detail about the case study sites derived from our review of LA and PCT documents, Public Health reports and community health services' quality accounts and annual reports. Following the survey in Phase One, nine sites in the South and East of England expressed interest in participating in the next phase of the study. After further discussions and consideration of factors, representing the greatest diversity in population, socio-demographic characteristics, and health economies, six community-based services working under the three different IPW models (Appendix 11) and in six different LA areas agreed to participate. One site was an inner city area (A5), two were urban areas (A1, A3), two were suburban bordering on more rural areas (A2, A4) and one was in a rural, shire county area (A6). The population demographics of the areas are given in Table 5.

Two sites were in Unitary Authority areas. Two were in PCTs which spanned more than one Local Authority. Details of LA spend on adult social care services are provided in Table 6. Each LA site reported reduction in government funding following the Comprehensive Spending Review of October 2010 (165). The sites also varied in the size of the local health care economy with PCT budgets ranging from £300 million to £825 million, reflecting the different sizes of population and the presence of teaching and tertiary care hospitals in two of the sites. All sites had commissioning PCTs that implemented financial efficiency savings targets throughout the period of the study.

Table 5 Population characteristics in the case study sites*

	England Average	A1	A2	A3	A4	A5	A6
Local Authority Population (000s)		150-200k	150-200k	150-200k	150-200k	200-250k	500-550k
Density (number of people per hectare)	3.77	40-45	40-45	40-45	40-45	75-80	25-30
Black and minority ethnic group pop. (%)	6	25-30	10-15	25-30	10-15	25-30	10-15
Retired Persons (%)	13.54	11	11	11	11	7	9
Pensioners owning their own home (%)	68	70	74	70	70	50	61
Age > 60 in income deprived households *(%)		22% (in worst 20%)	14% (av.)	22% (in the worst 20%	16% (av.)	25% (in worst 10%)	13% (av.)

Source: 2001 census (www.ons.gov.uk/ons/guide-method/census/census-2001/index.html) Data has been rounded up to protect anonymity. *www.oneplace.audit-commission.gov.uk. *Data in bands to preserve anonymity

Table 6 Local Authority budgets for adult social care

	A1	A2	A3	A4	A5	A6
Local Authority net spend on adult social care (range)	£45 - £50 million	£45 - £50 million	£45 - £50 million	£45 - £50 million	£80 - £85 million	£145 - £150 million

Sources: Local Authority annual reports and statement of accounts for financial year 2009/2010. Data given in bands to maintain anonymity

All areas had produced Joint Strategic Needs Assessments (JSNA) for their local populations which were joint LA and PCT documents. All LAs and PCTs had strategic plans which outlined their plans for addressing the needs of older people and those with long term conditions. Their objectives reflected national policies and priorities, such as supporting wellbeing, enabling older people to remain independent at home, providing care closer to home and reducing unplanned hospital admissions. All had joint commissioning arrangements for older people's services and funded a broadly similar range of services reflecting national policies and priorities, although there were variations in volume, intensity and types of providers of services between sites. All had re-enablement teams, rapid response teams, community rehabilitation teams and community matrons. None had specific health service provision for care homes. One site used Health Act flexibilities to pool budgets between the LA and the PCT for older people's services. Four sites had been working on integrated care pathways between general practice and secondary care for people with specific long term conditions, e.g. COPD.

The number of general practices in the PCT area of each site ranged from under 35 in site A1 to over 75 in site A6. All sites had practice based commissioning groups and five included GP commissioning pathfinder consortia in their areas. Following the introduction of the NHS White Paper 2010 (14)there were further developments of GP commissioning consortia in preparation for clinical commissioning groups.

The sites also varied in their assessed performance of public services for older adults, with some sites achieving good performance for some indicators but none being in the highest performing group of LAs for all indicators (Table 7).

Table 7 Performance indicators of public services for older people by the Local Authority of each case study site in 2009

	A1	A2	A3	A4	A5	A6
Percentage of residents who believe older people receive the support they need to live independently	26% (in the lowest 20%)	24% (in the lowest 10%)	26% (in the lowest 20%)	23% (in the lowest 10%)	20% (in the lowest 5%)	28% (in the lowest 30%)
People with a long-term condition supported to be independent and in control of their condition	63% (in the worst 5%)	79% (in the best 25%)	63% (in the worst 5%)	79% (in the best 25%)	66% (in the worst 10%)	79% (in the best 25%)
Older people receiving direct payments at 31 March 2009 per 100,000 population	Over 150 (average)	Over 300 (in the highest 20%)	Over 150 (average)	Over 300 (in the highest 20%)	Over 160 (average)	Over 180 (in the highest 30%)
Older people helped to live at home per 1000 population aged 65 or over	50-60 (in the lowest 20%)	90-100 (in the highest third)	50-60 (in the lowest 20%)	90-100 (in the highest third)	90-100 (average)	70-80 (in the lowest 25%)
Older people aged 65 or over admitted on a permanent basis in the year to residential or nursing care	50-60 (in the lowest 20%)	50-60 (in the lowest 10%)	50-60 (in the lowest 20%)	60-70 (in the lowest 20%)	50-60 (in the lowest 10%)	60-70 (in the lowest third)
Acceptable waiting times for assessment	83% (in the lowest 20%)	90% (average)	83% (in the lowest 20%)	77% (in the lowest 5%)	86% (average)	84% (in the lowest 25%)

Source: www.oneplace.audit-commission.gov.uk

All the sites experienced organisational and operating changes during the period of involvement in the study. These generally arose as a result of local implementation of national policy initiatives, with often consequent impact on interagency and interprofessional working. Five sites were experiencing PCT reorganisations and mergers as a result of the NHS White Paper 2010 signalling the demise of PCTs (14). All sites also experienced mergers of the community services provider organisations with either acute hospital Trusts or other community provider services. Most were aiming for Foundation Trust status, under the Transforming Community Services policy(166). Consequent effects in some sites on local community health service teams included changes in patient population groups, changes in working arrangements with general practices, and relocation of staff into hospitals from health centres. The continued implementation of the personalisation of publicly funded support to older adults under the Transforming Adult Social Care Initiative (167) was more visible in some sites than others.

6.2 Health and social care staff working in one of three models of IPW

Older people were recruited to the study through introduction by health or social care staff working under one of three models of IPW (Appendix 11). Table 8 describes the type of model of IPW in each site.

Table 8 Models of IPW by site (N=6) code

Model of IPW	Urban	Suburban/Rural
Case Management	A1	A2
Integrated	A3	A4
Collaborative	A5	A6

The A1 staff working in **a case management type model** were community matrons. They were based in a centralised office shared with other primary care staff, mainly from other nursing professions, and worked with multiple GP practices in the local area. Referrals to this service were mostly through GPs, some referrals were made from the acute sector and a small proportion from professionals of other health or social care disciplines. Multiple hospital admissions and complex conditions were the main referral criteria. Historically patients had remained on the case managers’ caseloads, however discharge criteria were changing due to pressures on the services and where appropriate, support would be withdrawn or moved to another service provider. During the course of the study this service altered by increasing the caseloads of the community matrons and reducing the time scale for turning round referral assessments.

In contrast, the A2 staff working in **a case management model** were community-based clinical specialist nurses. These were based in health centres at the commencement of the study and then moved to centralised offices in hospital buildings. They worked closely with hospital based consultant teams. Patients were referred to them through the consultant teams, GPs and some other health professionals. These patients came from a defined geographical area. Patient records were electronic but not linked to any other services. During the course of the study these nurses altered location and some were reorganised to join a new integrated team, with therapists.

The A3 staff worked in an **integrated team model**. They were members of multi-disciplinary community rehabilitation team providing a 6 week time-limited service to any age adult, for post hospital support. A3 LA funded one team which paid for a number of social workers. This team had access to LA funded care home beds (contracted with certain care homes) that could be used to facilitate a move from hospital to home. Their Service user records were paper notes, although the LA social work staff used the social services IT system. Most communication took place through regular team meetings and informal discussions between professionals.

The A4 staff likewise worked in an **integrated team model**. They were members of a multi-disciplinary community rehabilitation team providing a 6 week time limited service to any age adult, for post hospital discharge for neurological conditions. This team included different types of therapists and nurses but no specific social worker. Referral to the team had to be from hospital services and patients could live anywhere in the LA. Their patient records were paper and electronic but did not link to any other service. Therapists on the team rotated through community and hospital teams on a six monthly basis.

The A5 staff worked in **a collaborative model**. They were members of a district nursing service that included community matrons and health care assistants. Therapists, social workers and other nursing teams were co-located in the same building. Their patients were those registered with named general practices within the local area and were unable to leave their home for lack of mobility or appropriate assistance. The patients referred themselves, or this was done by GPs, by hospital staff, or by other health and social are professionals. The patient records maintained by this team were both paper and electronic but neither linked to other services. Towards the end of data collection the community matron members of this team were realigned with other services that aimed to identify people at risk of hospitalisation *before* they had an unplanned hospital admission.

The A6 staff worked in **a collaborative model**. They were members of a community nursing service that included community matrons and aimed at reducing unplanned hospital admissions. Referrals were mostly received from GPs or the acute hospital sector, additionally referrals were accepted from other health and social care professionals with whom the teams collaborated. Their patient records were electronic but were not linked to other services. During the course of the study managers changed the locality the team was responsible for and there were moves to prioritise cases to focus on admission avoidance.

6.2.1 The older people in the study

Across the 6 sites, the staff introduced members of the research team to 68 older people who had expressed an interest in the study. Of these 62 older people agreed to participate. Recruitment to this number took six months. Of the 62 older people, 21 were introduced by a staff member from a case management model of service, 18 by a practitioner working in an integrated team model and 23 by a practitioner working from a collaborative model. Slightly more women than men agreed to participate and they were spread across the age deciles. The majority of participants (82%) were of white British ethnicity. A further 11% were 'white other' and 6% were from minority groups.

Just over half (53%) of the patient participants lived with others at time 1 and the majority of these lived with their spouse. Forty two percent lived alone with 5 percent living in a care home. Nearly two-thirds (61%) of participants introduced by the collaborative model staff lived alone, compared to less than a third of those introduced via a case management model staff member. Only the staff of integrated model introduced participants living in care homes at T1. Twenty seven percent lived in rented accommodation, with no differences in rates between owner occupied or rented accommodation between the types of IPW introducing the older person.

Older people introduced via the case management model and the collaborative model in the two suburban/rural sites reported the highest average number of medical diagnoses. The baseline characteristics of participants are compared by model in Table 9. There were significant differences between models in mean age, number of medical conditions and reporting of having a family carer. Patients recruited by the integrated teams were younger, and with fewer co-morbidities, than those in the other models. Mean health related quality of life and frailty were not significantly different between patients in the three models.

There was large variability in the time that participants reported at baseline that they had been with their providers prior to recruitment to the study, but no significant difference in the mean time between models. Even though the integrated teams provided six week time limited interventions, 12 of the 18 people recruited to that model reported a longer time with the team (eight reported between 3 and 6 months; three reported 11 months, and one over 9 years).

Table 9 Baseline characteristics of participants and comparison across models

Characteristic		Case management (N=21)		Collaborative (N=23)		Integrated team (N=18)		Total (N=62)	Significant difference between models	
		N	%	N	%	N	%	N	%	Chi Square
Gender	Male	11	52.4	6	26.1	10	55.6	27	43.5	p =.102
Living situation	Home	19	90.5	19	82.6	13	72.2	51	82.3	p =.081
	Assisted	2	9.5	4	17.4	2	11.1	8	12.9	
	Institution	0		0		3	16.7	3	4.8	
Live alone	Alone	6	28.6	14	60.9	6	33.3	27	41.9	p=.087 (alone *vs.* others and institution)
	With others	15	71.4	9	39.1	9	50.0	32	53.2	
	Institution	0		0		3	16.7	3	4.8	
Has family carer	Yes (*vs.* No)	14	66.7	6	26.1	8	44.4	28	45.2	p =.026
Has paid (social) carer	Yes (*vs.* No)	7	33.3	15	65.2	8	44.4	30	48.4	p =.099
Ethnicity	White (*vs.* other)	21	100	20	87.0	17	94.4	58	93.5	Ns
		Mean Min	SD Max	Mean Min	SD Max	Mean Min	SD Max	Mean Min	SD Max	ANOVA
Age	Years	79.14 61	8.84 93	80.83 64	9.86 101	71.33 60	7.43 89	77.50 60	9.61 101	p =.003
Main medical issues	Number	4.38 1	1.99 8	5.00 1	2.15 10	2.61 1	1.38 6	4.10 1	2.12 10	p =.001
Prescription medications	Number	10.24 3	4.43 18	11.48 1	7.50 29	N=17 8.29 2	5.24 20	N=61 10.16 1	6.01 29	p =.257 (not signif)
Health-related quality of life	EQ-5D VAS (0 -100 best)(168)	62.86 25	18.54 100	N=21 67.71 20	21.15 100	N=14 67.14 35	18.58 95	N=56 65.75 20	19.37 100	p =.69 (not signif)
Frailty score	Edmonton (0-17 most frail)(169)	8.10 4	2.23 12	N=22 8.27 3	2.81 14	N=16 8.28 4	2.16 12	N=61 8.21 3	2.40 14	p =.963 (not signif)
Time with team	Days	N=19 374.2 3	561.8 1850	N=21 409.4 0	356.1 1613	N=18 258.1 27	696.4 3033	N=57 353.6 3	540.0 3033	p =.705 (not signif)

At baseline the older people had a range of frailty scores. Using the categories used by other researchers using the Edmonton Frailty score (9) at baseline, 10 percent had severe frailty, 18 percent moderate frailty, 33 percent mild frailty and 26 percent an apparent vulnerability to frailty and 13 percent scored below these thresholds.

6.3 Participation over nine months

Sixty two people participated in T1 interviews. By the T2 interviews, eight people had died, three declined to continue and four declined the interview but gave consent for information about themselves and their care to be shared with the researchers by the professional they considered to be their main contact. At T3 interviews, three further people had died and six declined an interview but gave us permission to contact a named professional for information about themselves and their care (see Table 10).

Table 10 Participation over nine months of the study (n=62)

		number	Participating in study
T1	Interviewed	62	62
T2	Interviewed	47	51
	Consented to professional sharing information only	4	
	Declined to continue	3	
	Died	8	
T3	Interviewed	44	50
	Consented to professional sharing information only	6	
	Died	1	

6.4 Economic Analysis

6.4.1 Introduction

The economic analysis focussed on describing the range and frequency of health and social services used by patients recruited to the study, and comparing utilisation across models of IPW. A micro-costing analysis was conducted to capture patient–level resource implications, and explore differences in costs within and between models. Although there was variation in the timing of T2 interviews, there was no significant difference between IPW models in the mean number of days that participants were in the study (i.e. between T1 and T3) (Table 11). The analysis of service use and costs therefore concentrated on the 50 participants who remained in the study for the full nine month observation period. There was no significant difference between patients who completed the study and those dropping out on any baseline characteristics, but comparisons were limited by the small sample size (data not shown).

6.4.2 Methods

Service use data were collected during interviews with participants. A comprehensive list of professionals and services was compiled spanning all sectors: primary and community (GP, practice / district / community nurses, specialist nurses, community matron, health care assistant, pharmacist, physiotherapist, therapy assistant, occupational therapist, speech and language therapist, dietician, intermediate care, chiropodist, dentist, optician, mental health consultant); hospital (outpatient, day hospital, A&E, inpatient); social care (social worker / care manager, day centre, meals on wheels, care workers); voluntary; private. For primary and community services, a distinction was drawn between clinic consultations, home visits and telephone contact. Participants were asked to recall and self report their use of each item over the previous period: T1 (baseline), covered the three months prior to recruitment to the study; T2, covered the period between baseline interview and second interview; T3 (final) covered the period between second and third interview. Since many recipients of social care have multiple contacts over a week, the calculation of total contacts over the three month recall period was considered to be too onerous, and participants were instead asked to report at each interview their utilisation of paid (social) care for a typical week during the reporting period. A total for the period was then calculated by multiplying the weekly utilisation by the number of weeks in the time period. Participants reporting use of social care services were asked who paid for these (self pay vs. Local Authority / social services).

Patient level data were entered into SPSS for analysis. Total primary and community service contacts for each patient were calculated for each professional, disaggregated by mode of contact (clinic visit, home visit, telephone), for each time period (T1, T2 and T3), and over the whole study period (T1+T2+T3), and frequencies examined. The number of patients accessing each service (vs. nil utilisation) was identified to provide an indication of variability between patients. Total contacts for each professional (clinic visit + home visit + telephone) was calculated for each time period and over the whole study period, and summary statistics were produced. Differences in utilisation between models were explored using Kruskal-Wallis tests.

For each hospital, social care and voluntary sector service, total utilisation by patients in each model was calculated, and the number of patients accessing each service was identified, for each time period, and over the whole study period, and summary statistics were produced. Differences in utilisation between models were explored using Kruskal-Wallis tests.

The total number of different professionals or services ever contacted by each participant over the study period was calculated, to provide an indication of the extent of IPW. Differences between models were explored using ANOVA, and confirmed using (non parametric) Kruskal-Wallis tests. Associations between patient characteristics and the total number of professionals and services accessed were explored using Pearson's correlation and unpaired t tests, as appropriate.

Costs of each professional and service used by each participant were calculated in pounds sterling, 2010, by multiplying each item of service used by nationally validated unit costs (Appendix 6). Costs were summed by category (primary (GP), community, inpatient, other hospital, paid care worker (social), voluntary), and overall, and compared across models using Kruskal-Wallis tests.

Table 11 Time (days) between interviews, and comparison across models

Intervals between interviews	Case management N= 21			Collaborative N= 23			Integrated team N= 18			Total N=62			Signif. diff.
	N	Mean Min	SD Max	N	Mean Min	SD Max	N	Mean Min	SD Max	N	Mean Min	SD Max	ANOVA
T1-T2	15	150.1 125	22.7 190	20	142.5 119	13.3 180	13	161.4 130	16.9 185	48	149.9 119	19.0 190	**p=.015**
T2-T3	15	128.7 74	25.1 182	18	136.3 98	19.4 183	13	116.9 77	23.9 165	46	128.4 74	23.5 183	p=.074
T1-T3	18	279.4 251	14.1 310	18	278.8 257	16.8 314	13	278.2 253	16.6 319	49	278.9 251	15.5 319	p=.978

6.4.3 Service use – comparison between models

Contacts with the same professional or service were summed (i.e. in clinic + home visit + phone), for primary and community services, and model means were calculated and compared. Frequencies of service use (all items separately) for each time period and model are reported in Appendix 12. The highest frequencies of contacts were reported with nurses, community matrons and physiotherapists. For many services, a relatively small number of patients accounted for a large proportion of the reported contacts (i.e. many participants reported no use of the service). Consistent with the time limited nature of the interventions, contacts with physiotherapists, therapy technicians and occupational therapists decreased over the time period of the study (Appendix 12).

The total number of contacts with each professional or service (separately for home, clinic and phone, when applicable: a total of 62 different items) was calculated for the 50 participants who completed the study by summing reported contacts across the whole study period (T1+T2+T3).

Totals were compared across models. Significant differences (p<.10) were found between models on six primary and community care items (Table 12). There was no significant difference between models in reported use of hospital, social care or voluntary services.

Table 12 Comparison of models in utilisation of professionals or services (all items separately) across whole study period, for 50 patients providing data at each time point*

T1+T2+T3 **Professional or service**	**Case management (N=18)**		**Collaborative (N=19)**		**Integrated team (N=13)**		**Significant difference between models**
	Mean **Max**	**SD** **Min**	**Mean** **Max**	**SD** **Min**	**Mean** **Max**	**SD** **Min**	**ANOVA** **P**
Community matron home visits	**18.0** 65	18.46 0	**15.26** 57	17.54 0	**.69** 9	2.50 0	.009
Community matron phone calls	**6.39** 30	7.91 0	**3.79** 18	5.84 0	**.62** 8	2.22 0	.041
Health care assistant home visits	**4.89** 22	5.79 0	**.16** 2	.50 0	**.38** 4	1.12 0	<.0005
Primary / community physiotherapist home visits	**.78** 6	1.77 0	**1.58** 13	3.27 0	**13.83** 38	13.44 0	<.0005
Occupational therapist home visits	**.22** 1	.43 0	**.65** 3	.96 0	**10.31** 38	12.75	<.0005
A&E contacts	**1.67** 9	2.57 0	**.68** 5	1.49 0	**.15** 1	.38 0	.067

* Data not shown for items where no significant differences between models were found (p>.10)

Differences in the utilisation of primary and community professionals and services appear to reflect the characteristics of the models and the patients they serve. Community matron home and phone contacts were significantly higher in the case management and collaborative models where community matrons deliver the care, whilst home visits from physiotherapists and occupational therapists are higher for patients in the integrated rehabilitation teams. Patients in the case management and collaborative models are older and have more medical conditions than those treated in integrated teams. Those receiving case management report higher use of health care assistants and (marginally) of A&E than those in the other models (Table 12). This pattern is confirmed when clinic, home and phone contacts with primary and community professionals or services are summed across whole study period and compared between models (Table 13).

Table 13 Comparison of models in utilisation of primary and community professionals or services (with home, clinic and phone contacts summed) across whole study period, for 50 patients providing data at each time point *

T1+T2+T3 Professional or service	Case management (N=18)		Collaborative (N=19)		Integrated team (N=13)		Significant difference between models
	Mean Max	SD Min	Mean Max	SD Min	Mean Max	SD Min	ANOVA P
All community matron contacts	24.78 81	23.77 0	19.32 63	20.30 0	1.30 17	4.72 0	.005
All health care assistant contacts	5.06 22	5.71 0	.16 2	.50 0	.38 4	1.12 0	<.0005
All physiotherapist contacts	.78 6	1.77 0	2.89 19	5.15 0	14.62 38	12.86 0	<.0005
All therapy technician contacts	0 0	0 0	.84 10	2.61 0	3.38 18	6.02 0	.029
All occupational therapy contacts	.22 1	.43 0	.58 3	.96 0	10.38 38	12.82 0	<.0005

* Data not shown for items where no significant differences between models were found (p>.10)

6.4.4 Range of professionals and services accessed

For each participant, the number of professionals or services that they reported they had ever been in contact with (clinic consultation, home visit or phone call) during the whole study period (T1+T2+T3) was calculated. Included in the list of possible professionals/ services were: GP, practice / district / community nurse, community matron, specialist nurse, health care assistant, primary / community physiotherapist, therapy technician, occupational therapist, speech and language therapist, dietician, intermediate care nurse, chiropodist, mental health consultant, other primary/ community worker, day hospital, hospital physiotherapist, social worker, day centre, Crossroads / sitter service, paid (social) care worker, meals on wheels. Services excluded were: optician, dentist, outpatient appointments, A&E visits, inpatient episodes or days, private podiatry and private physiotherapy. There was no weighting for the number of contacts with any professional or service.

The median number of different professionals and services accessed by patients over the whole study period was higher in the collaborative model

(6) than in the integrated team (5) and case management (4) models, but statistical tests revealed no significant difference between models (Table 14). A higher health related quality of life score (EQ-5D) was significantly associated with having contact with fewer professionals / services over the study period (Pearson's correlation coefficient -.30, p= .027). However, no significant associations were found between the number of professionals and services accessed and patient age, time with team, number of medical issues, number of prescribed medications, frailty score (Pearson's correlation), living alone (vs. with others) or gender (unpaired t test).

Table 14 Comparison of models in total number of different professionals / services that participants had contact with during the study period (T1+T2+T3)

Model	N	Total number of professionals / services over whole study period										
		1	2	3	4	5	6	7	8	9	10	11
Case management	21	0	4	2	7	1	1	0	2	1	3	0
Collaboration	23	1	2	3	4	1	3	4	2	1	1	1
Integrated Team	18	0	1	2	4	3	3	4	1	0	0	0

Model	N	Mean (Median)	SD	St Error	95% Confidence Interval for Mean		Significant difference between models	
					Lower Bound	Upper Bound	ANOVA	Kruskal Wallis*
Case Management	21	5.14 (4)	2.83	.618	3.85	6.43	.854	.795
Collaboration	23	5.52 (6)	2.67	.544	4.36	6.68		
Integrated Team	18	5.17 (5)	1.69	.398	4.33	6.01		

* Non parametric (for non-normal distributions)

6.4.5 Costs

Service use costs for the 50 participants who completed the study were summed by category (GP, community, inpatient, other hospital, social, voluntary, paid carer), and overall (Table 15). The largest element of cost in each model was paid home care (mean over study period: £5004 case management; £6887 integrated team; £8227 collaborative). Whilst approximately half of this was reported to be self paid (vs. paid by Local Authority / social services) by patients in the case management and collaborative models, all patients in the integrated team model reporting receiving home care stated they paid for it themselves. Primary and community care was the next largest cost element (mean over study period: £2020 integrated team; £2385 case management; £2973 collaborative). The model mean costs for in-hospital care were lower because relatively small numbers of participants reported hospital stays, although those that did typically incurred high costs in each model.

Cost comparisons across models (Table 15) revealed marginally significant difference between the three models when primary and community care costs were combined (p=.082), with patients in the collaborative model incurring higher expenditures, but no other differences in costs between models were found. Across the whole sample, there was a trend for higher GP and community costs to be associated with living alone (p=.091). No other patient characteristic were found to be associated with primary and community care costs.

Table 15 Costs (2010) of service use for 50 participants providing information over all three time periods: comparison of models

T1+T2+T3 Cost category	Case management (N=18)			Collaborative(N=19)			Integrated team (N=13)			Significant difference between models
	Median **IQR**	**Mean** **Min**	**SD** **Max**	**Median** **IQR**	**Mean** **Min**	**SD** **Max**	**Median** **IQR**	**Mean** **Min**	**SD** **Max**	**Kruskal Wallis p**
GP	156 36 - 283	236.44 0	354.40 1548.00	288 120 - 600	400.00 0	370.97 1346.00	156 54 - 393	244.15 0	264.91 960.00	.211
Community	875 433 - 2120	2148.82 54.00	4200.04 18486.00	2038 833 - 2815	2572.67 47.00	2482.28 8577.50	1427 1035 - 2791	1776.46 170.90	1063.38 3382.00	.206
GP plus community	1125 720 - 2228	2385.26 90	4196.86 18642.00	2409 1516 - 3775	2972.67 83.00	2374.68 8817.50	1830 1382 - 3005	2020.61 314.90	1044.70 3421.90	.082
Inpatient	346 259 - 778	576.67 0	605.14 2076.00	0 0 - 692	509.89 0	723.65 2422.00	346 0 - 519	319.38 0	330.11 1038.00	.481
Other hospital	350 0 - 907	586.67 0	834.54 3472.00	194 0- 1088	864.47 0	1404.00 4624.00	272 68 - 884	579.85 0	708.96 2176.00	.966
Social	0 0 - 106	105.42 0	274.50 1186.50	0 0 - 213	472.76 0	1696.66 7455.50	0 0 - 106	201.35 0	538.38 1978.50	.945
Voluntary	0	234.73 0	750.44 3018.00	0	190.61 0	830.85 3621.60	0	0	0	.457
Paid carer all*	0 0 - 9128	5004.12 0	8024.97 28483.20	1125 0 - 15906	8227.05 0	10153.95 28792.80	0 0 – 143.77	6887.11 0	9698.50 28096.20	.520
Paid carer self	0 0 - 4896	2630.52 0	4892.22 15131.70	0 0 - 3656	3816.86 0	7692.50 260.83.80	0 0 – 143.77	6887.11 0	9698.50 28096.20	.531
Paid carer LA	0 0 - 0	2733.60 0	7327.24 28483.20	0	4131.73 0	8749.86 28792.80	0	0	0	.204
GRAND TOTAL	3811 1790 – 11636	8892.87.00 279.80	11907.91 49518.20	7484 3997 - 18917	12804.47 219.00	11525.90 37610.30	5308 2950 – 17263	10008.30 1201.00	9207.10 30024.20	.341

*22 patients had a paid home care worker (of which 16 self paid); 6 (4) in case management; 11 (7) in collaborative; 5 (5) in integrated team

6.5 Change over time

The older people in the study experienced one of four types of trajectory in their health and wellbeing over the time period of the study. These were that:

- They recovered from the event or illness that had made them patients of the introducing service.
- Their health and wellbeing stayed more or less the same.
- They experienced fluctuations and exacerbations with an overall gradual decline.
- Their health and wellbeing markedly deteriorated, for some resulting in death during the time of the study.

Some people described marked improvement in their health recovery and these were events such as trauma following a road traffic accident or surgery for cancer. In this exemplar below the improvement in health was marked by the older person's reflection on where the interview had been conducted:

'Yeah, that's right, you came and saw me the first time I think I was in bed and then I, (you) saw me in the front room last time....... Yeah, I've been back to the hospital, I've been to the oncology department, saw [consultant], she was very pleased with me, she didn't even examine me, she said I was okay.' 69A5 time 3 (T3)

For others the improvement was less marked:

'I go in July [to a hospital appointment] for the arm which is slowly, very slowly getting somewhere, I can actually hold things in it but now I'm trying to build up holding weights, I can do that (raises arm).' 49A4T3

For many of the participants, while they reported their health and wellbeing as much the same over the time period, they were experiencing multiple health problems as in this exemplar:

'Well there is the kidneys, and I suppose the pacemaker type thing and all this......and I suffer from cramp… have you got a long piece of paper? And also the arthritis in my knees and ankles and stuff, shoulders, but that's sort of fair wear and tear I would say. But generally speaking, apart from my breathing not getting better, if not tending to be a little worse, it's the same as normal, as usual not normal. So I haven't got a great deal to report as far as being… different.' 22A2T3

There were also those with fluctuating health over the time period. There were multiple reasons for this but they mainly grouped under medication problems and infections as the causes:

'Just after I saw you last time, I was very low and eating anything. I fell off the bed and when the paramedics came my glucose level was 30 so I ended up in the diabetic ward for 5 days... it was a bit of a wake-up call and I've been keeping a food diary, and now I have insulin too. I'm trying to be good about it and do what they say about the diabetes now.' 12A1T3

For some people their health and wellbeing markedly deteriorated over the time period as in this exemplar from one at T1 and T3.

'Reasonably good. I have not had to go to hospital.' 13A1T1 (in answer to the question 'How is your health?')

'Typical of the condition up and down, I am having a very good day today. I feel really good, probably as high as I can be. But I had some pretty poor days even just back as Saturday, I felt awful, I had an awful weekend... wellbeing confined to the chair, struggling to breathe, it's depressing, it's no life'. 13A1T3

The Edmonton Frailty Scores for those who remain in the study over the entire period and participated in time 3 interviews (n=44) also illustrates the change over time through this type of grouping (see Table 16).

Table 16 Changes in frailty scores over 9 months of the study period for participants who completed interviews at Time 3 (n=44)

Frailty score	Initial score mild or less (n)	Initial score moderate frailty (n)	Initial score severe frailty (n)	Total
improved over time	7	10	5	22 (50%)
unchanged over time	3	0	1	4 (9%)
fluctuated but remained the same or slightly higher	7	2	4	13 (30%)
increased to a higher level	5	0	0	5 (11%)

Of the nine people who died during the course of the study their last frailty score had been in the moderate or severe frailty category.

Approximately half of those people remaining in the study introduced through the case manager model of IPW had frailty scores that remained the same over the nine months. Of the remainder there were more who demonstrated an improved frailty score compared to those who demonstrated increasing frailty over the period.

Similarly, roughly half of those introduced through the collaborative model of IPW, had similar frailty scores throughout; the remainder split more evenly between those whose frailty scores improved and those whose frailty increased.

Approximately half of those introduced through an integrated team model had improved frailty scores over the time period, with more of the remainder having the same frailty score throughout than those whose frailty score increased over the time period.

6.6 Service involvement over time

The participants described very different patterns of service use and a wide range of health and social care professionals involved in treating or supporting them. These patterns broadly mirror the groupings described in 6.5.

6.6.1 Time limited involvement

There were those who described time limited involvement with services following a health event and then no further involvement with them. This is illustrated diagrammatical in Figure 12 (Service use Visio 51). In this example there was concentrated therapy involvement following a neurological event that was time limited by the service.

The findings on the service utilisation and costs of the different models are as might be expected, given the professional remits and characteristics of patients treated by the teams in the different models. For example, the patients in the integrated rehabilitation teams reported significantly more contact with physiotherapists and occupational therapists, and patients in the collaborative and case management models reported more community matron contact. Patients in the collaborative model reported accessing a wider range of professionals and services over the whole study period than patients in the case management and collaborative models (although the difference was not statistically significant). There was also a tendency for patients in the collaborative model to incur higher primary and community health care costs (p=.083). These patients were older and had more co-morbidities than the patients in the integrated team model, but had similar characteristics as those being case managed. This raises the question as to whether case management might be more effective at containing primary and community care costs than collaborative arrangements

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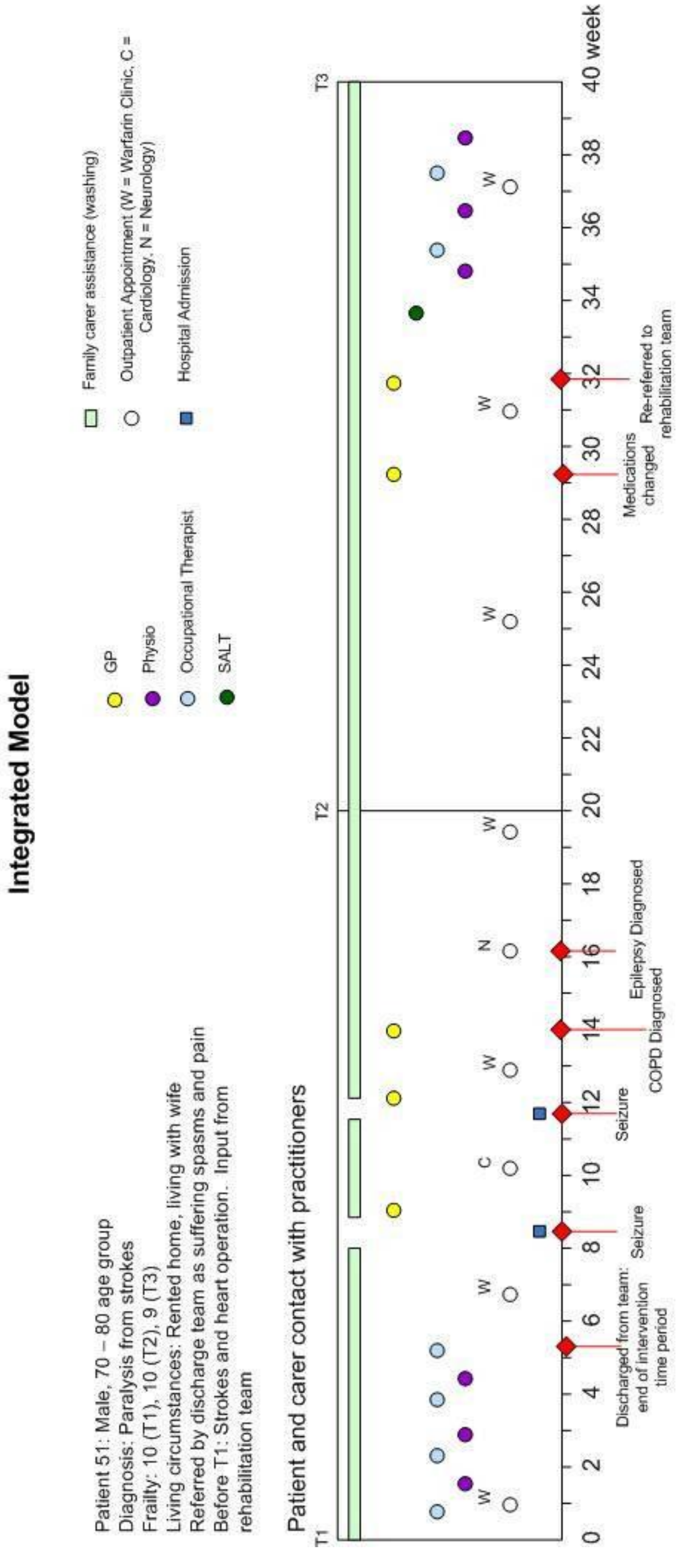
Figure 10 Service Use Visio 51



Patient 51: Male, 70 – 80 age group
Diagnosis: Paralysis from strokes
Frailty: 10 (T1), 10 (T2), 9 (T3)
Living circumstances: Rented home, living with wife
Referred by discharge team as suffering spasms and pain
Before T1: Strokes and heart operation. Input from rehabilitation team

6.6.2 A stable pattern of involvement over time

A second group described a very stable, relatively unchanging pattern of health and social care involvement. This is illustrated in Figure 13 (Service Use Visio 68) in which the person received treatment and dressings of skin grafts and leg ulcers over the nine months. Another example is illustrated in Figure 14 (Service Use Visio 77) where the person went to a day centre three times a week throughout the period.

Figure 11 Service Use Visio 68

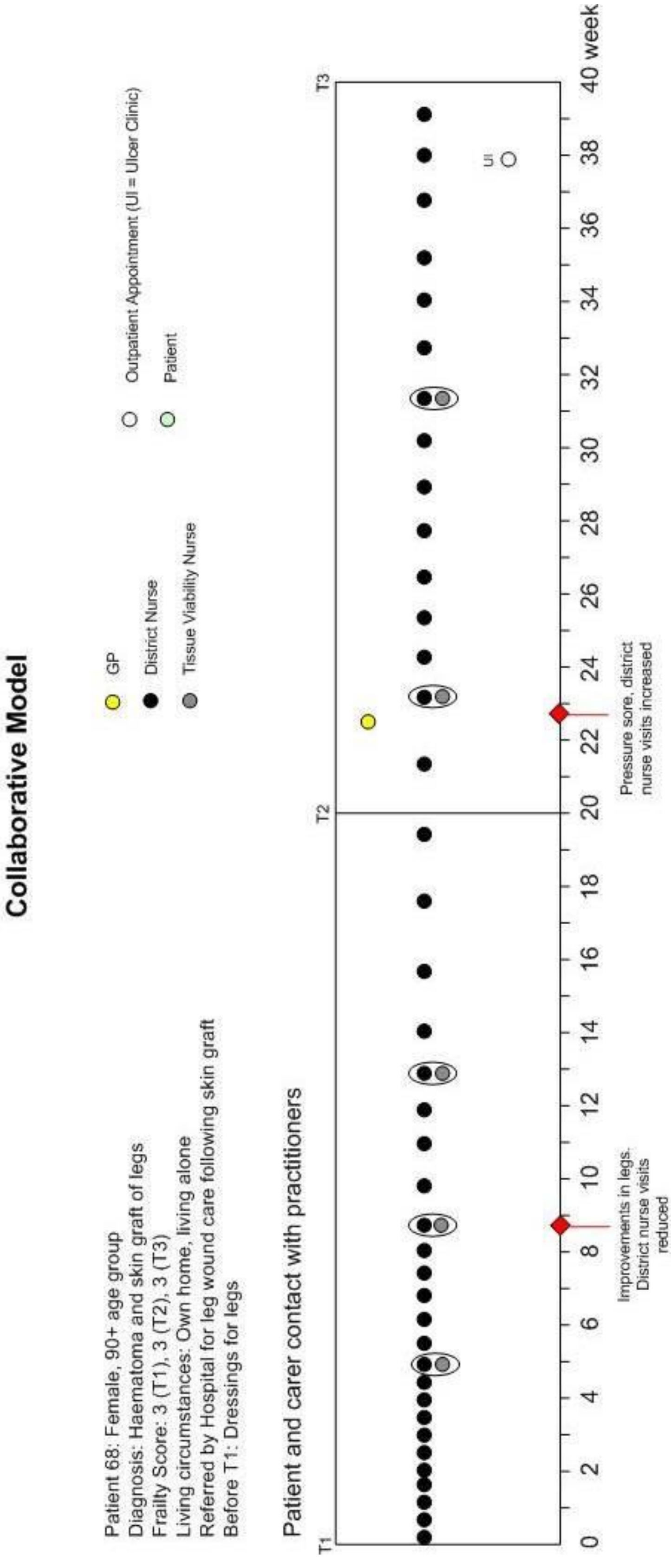
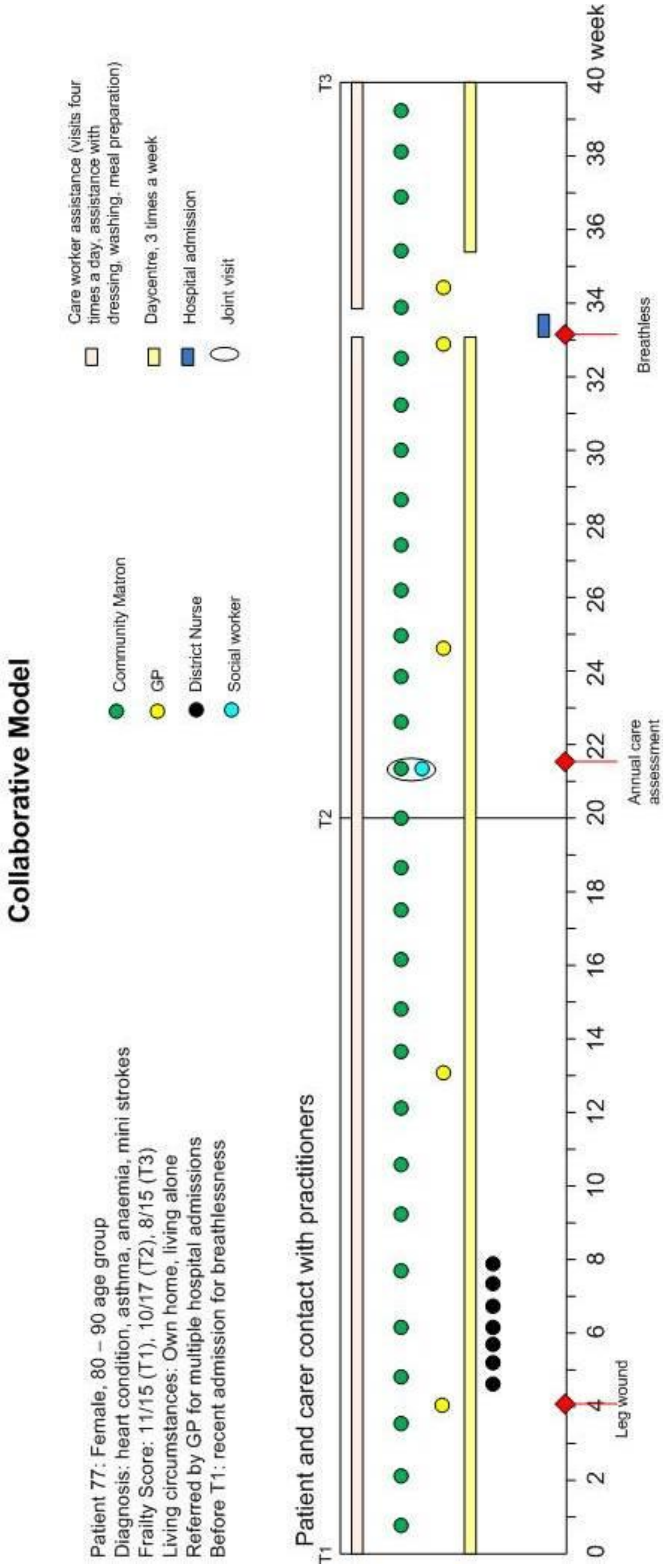


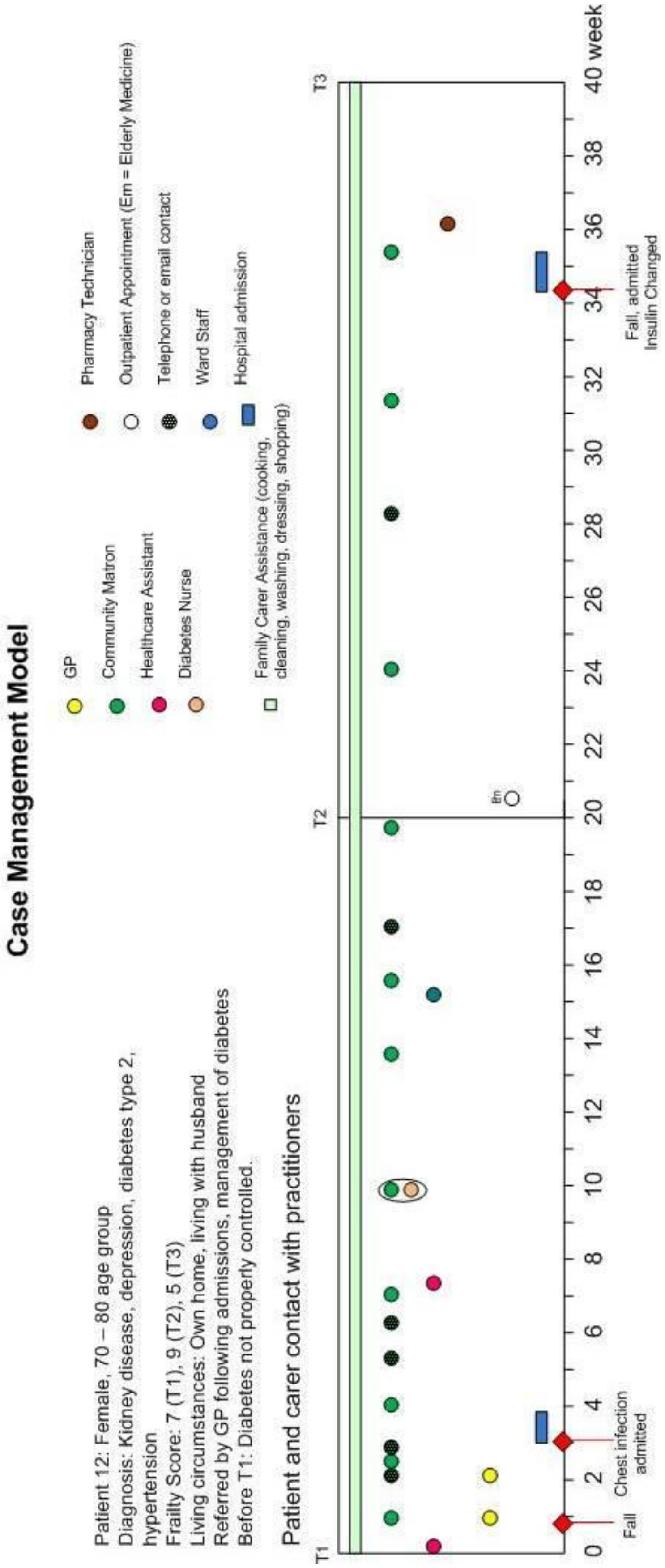
Figure 12 Service Use Visio 77



6.6.3 A fluctuating pattern of involvement

A third group described involvement and contact of services that changed over time with times of greater intensity or hospital admission as a result of a change in their health, an exacerbation of a pre-existing condition or a new critical event in their health and wellbeing. This is illustrated by Figure 15 Service Use Visio 12.

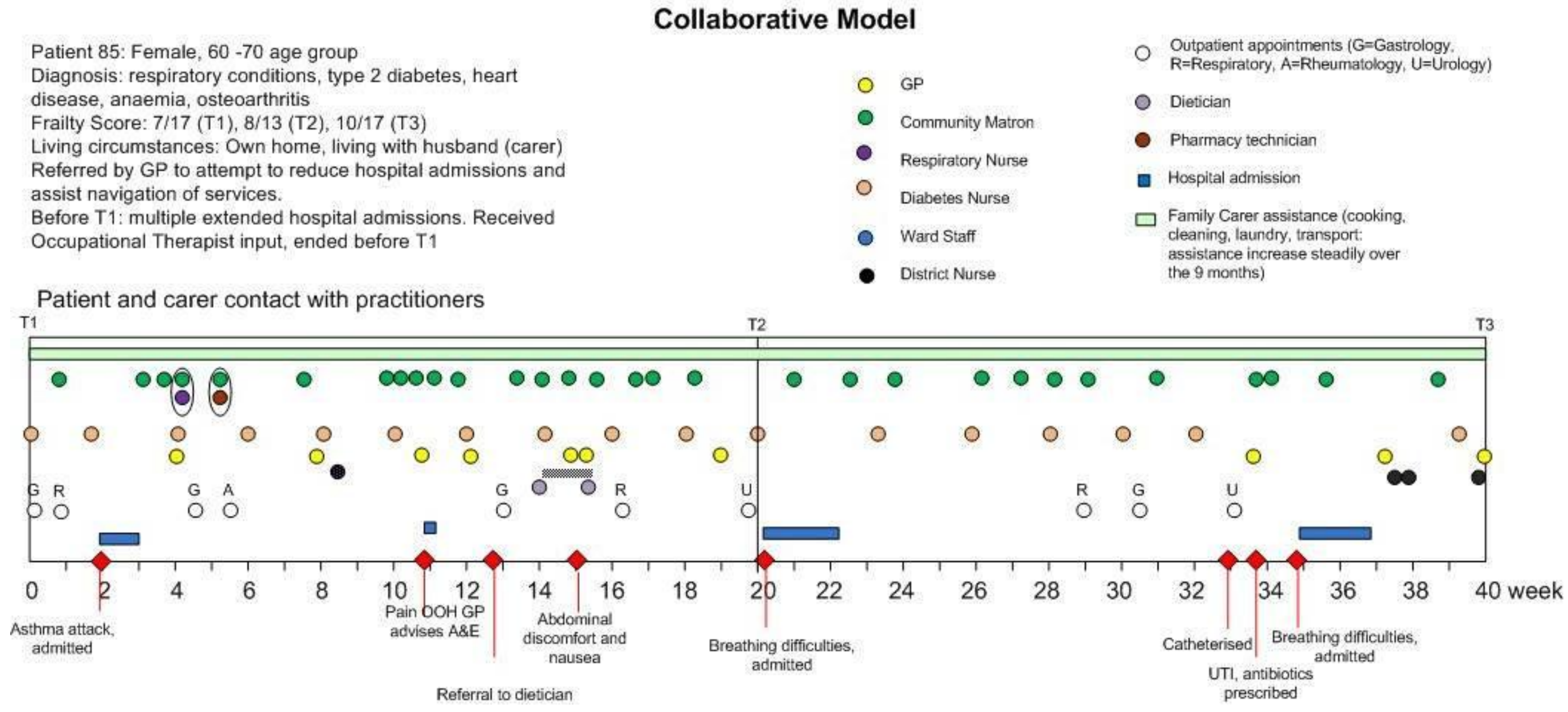
Figure 13 Service Use Visio 12



6.6.4 An intense pattern of involvement

A fourth group was those older people who described involvement from many different services and professionals in their lives. These divided between those that described involvement not only from primary care and community services but also multiple hospital consultant teams and those that described primarily the involvement of primary care and community services. The former is illustrated in Figure 16 Service Use Visio 85 and the later in Figure 17 Service Use Visio 79.

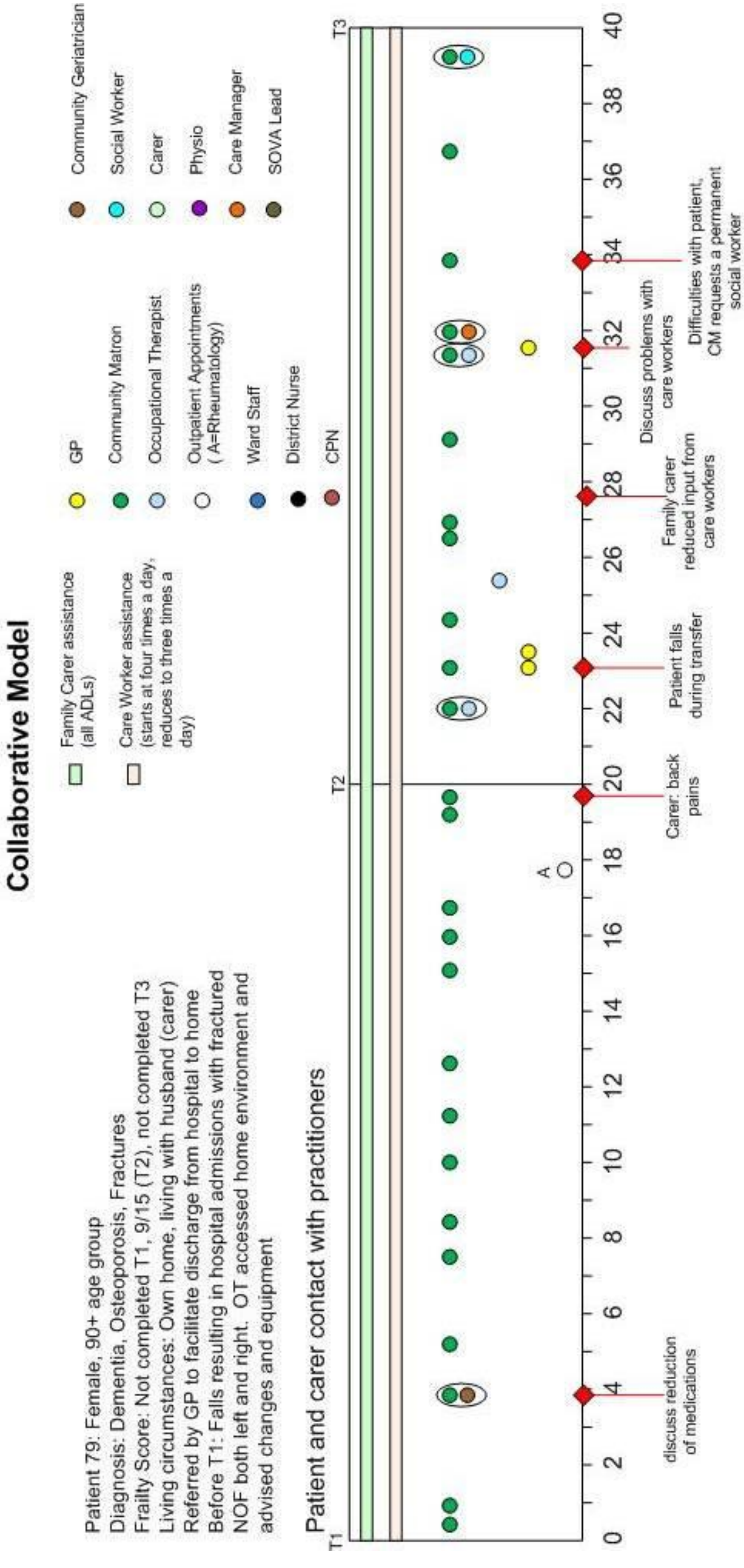
Figure 14
Service Use
Visio 85



Collaborative Model

Patient 85: Female, 60 -70 age group
Diagnosis: respiratory conditions, type 2 diabetes, heart disease, anaemia, osteoarthritis
Frailty Score: 7/17 (T1), 8/13 (T2), 10/17 (T3)
Living circumstances: Own home, living with husband (carer)
Referred by GP to attempt to reduce hospital admissions and assist navigation of services.
Before T1: multiple extended hospital admissions. Received Occupational Therapist input, ended before T1

Figure 15
Service Use
Visio 79



6.7 Family and Friends

Many of the participants described receiving a range of support and care from family and friends. For those with high levels of disabilities and living with spouses it was evident that the spouses played major roles in support and care as in this exemplar:

'You name it; she (Wife) does it! Erm, well she does everything. She cooks, she looks after me, she pays for me, she shops for me. As I say you name it, she does it. And she didn't pay me to say that either.' 17A2T1

Some participants had other family members living close by who actively participated in supporting them:

'My son, when he is finished work, he comes back and gives me a dinner in the evening. And then he goes home, he lives in(about 2 miles away).' 71A5T1

Those living on their own described neighbours or friends as being important in coping with everyday activities and/or at times of crisis:

'If I need any shopping, my neighbour does it and she comes down here and cooks, she comes three times a week to cook.' 21A2T1

There were also those who had no family or friends to provide support:

'I don't have anybody in England at all. I have one sister left and she's in Australia.' 66A5T1

6.8 Older person defined outcomes

The older people participating in this study were asked to define the outcomes they hoped for over the next year in different ways. Overall, there was a marked difference in the types of outcome that the participants introduced according to the different models of IPW they were experiencing. The majority of those introduced through the integrated team were anticipating improvement and recovery. The majority introduced through a case manager were anticipating maintenance of their health and wellbeing. The majority of those introduced through the collaborative model staff were focused on very short term objectives of improving or sustaining quality of life.

6.8.1 Those introduced by an integrated team

Many of those introduced by professionals from time limited integrated teams reported the outcomes of care they were aiming for as very specific improvements, often in some aspect of their physical functioning and mobility:

'I will get stronger which means it will get better, I can go out then and plus I'd be able to do things like walk down the stairs on my own. Yes, I feel better already, so it's upwards.' 49A4T1

A number of those reporting outcomes of improvement in their physical abilities could not envisage how these would be achieved within the time limited period of the integrated team involvement and were uncertain as to what would happen at the end of the period:

'I'd like to be able to walk about again, to move around my own flat. Get about a bit and do stuff, not just sit here – it's a waste of time..... *They told me they would be coming for 6 weeks but after that - I've got no idea.'* 37A3T1

A small number expressed outcomes that were captured by phrases '*to be much the same*' or '*no worse*', i.e. that their present objectives were to maintain their current state of health and wellbeing with no further deterioration.

A small number had more specific objectives to do with changing accommodation so that they were closer to or were living with members of their family to meet their support and social contact needs:

'Need practical advice. I am looking to move in with my father who is in sheltered accommodation up north. Everything is set up for him, I could stay there. I am over 60. It's all I want – the security..... At least I will have someone to talk to, and not be staring at four bloody walls.' 36A3T1

6.8.2 Those introduced by the case management staff

More than half of the participants who were introduced through staff in case manager roles were hoping their health and abilities would get no worse. Their objective was maintenance of their health and wellbeing:

'Don't want it [my health] changing much, unless the pain - do something about my sciatica, they say they won't, can't, do anything about it, hope it doesn't get any worse.' 12A1T1

A small number were looking for slight improvements in their health and wellbeing:

'No, I wouldn't say changing. I hope to get a bit better in the next 12 months. Once I get all these different things sorted, I will feel a lot better.' 20A2T1

Two had objectives that were about good quality of life in the short term and one of these had begun to consider aspects of his death:

'I don't see much of a future at all, but I just want to maximise what I have got. I don't feel as though I want to give up. I am not afraid of dying; I am afraid of dying slowly…...I would sooner have six months of enjoying myself than two years on that machine, oxygen bottles and what have you.' 13A1T1

6.8.3 Those introduced by the collaborative staff

Many of those introduced by the collaborative staff had objectives that were about ensuring quality of life in the short term:

'Well the first thing is that I keep my fingers crossed all the time, praying 'please God let me wake up in the morning, give me another day'. I sort of go on then from there. Well, it's day to day. It will have to be day to day because I'm hanging together - very nicely mind you.' 65A5T1

Their objectives were often about not wanting a change either in their health or those who supported them to maintain their quality of life:

'I mean as long as I can go round to this church here and there's somebody to push me, I will always go around there in my manual wheelchair. But it's like a big heavy thing hanging over me that I might be losing the (Local Authority) Home Care service and as I might be having to go to an agency... it's a case of having someone entirely new that I'm dreading it.' 66A5T1

Many of these people had also given thought to aspects of their death:

'Well, every day is a bonus isn't it! Just live for the day, if I don't wake up one morning, they will have to come and get me out of here. I have left my instructions; I want the cheapest, biodegradable coffin they can lay their hands on, as they are only going to burn it.' 62A5T1

A few offered objectives of improved health or another form of change, but some of these later qualified their statements:

'And my aim for the next year is to get up those stairs and into my own bed and into my shower room because I have a wet room upstairs which means I can look after myself completely on my own... I try to be positive but deep down I'm not. I keep saying that by this time I'm going to be upstairs in my bed, I'm going to do this and I'll do that but I can't actually see it all happening.' 64A5T1

6.9 Defining effectiveness over time

Older people in Phase Two could stay with the services throughout the study, be discharged from the service or be moved from one IPW model of care to another. As sections 6.5 and 6.6 have demonstrated, they could take up new services that worked with or were in parallel to existing provision. An understanding of how the different models achieved continuity of care and with what effect on patient outcomes was a useful way of distinguishing between the impact of the *individual* professional encounter and that of *multiple* professionals and organisations.

We considered the different dimensions of continuity of care as experienced by older people and carers to understand how participants described receiving care from the different IPW models (170, 171). Interview data were analysed in terms of what they revealed about communication of both facts and judgments across team, institutional and professional boundaries, and between professionals and older people (management continuity), the timely availability of relevant information and older people's understanding of their condition and treatment (informational continuity), and evidence of a therapeutic relationship with one or more health professionals over time (relationship continuity). This included access to services and older people's ability to co-construct their experience of care with professionals, family and carers.

6.9.1 Communication across team, institutional and professional boundaries, and between professionals, patients and family carers

Across the different IPW models the majority of patients and their carers had some understanding of how the different professionals did (or did not) communicate information between themselves. Three themes were identified: 1) Mechanisms used to support interprofessional communication; 2) Who took responsibility for the coordination of communication between professionals and organisations and the role of social care (local authority provided or privately arranged care); and 3) The ability of the IPW models to link with services that were not part of the NHS.

1. Mechanisms to support IPW communication

Older people and carers were aware that communication between professionals and organisations was organised through records kept in the home, meetings, communication through the older person themselves, protocols and occasionally with the support of telemonitoring systems.

It was commonplace for patient files and books of support plans to be kept in the older person's home. These recorded visits and sometimes details of care provided, but it varied as to how much this was seen as a support to

IPW. One older person recognised that two professionals arriving to visit at the same time was unplanned but at the same time believed the book of plans kept in her home was useful as a means of sharing communication:

'The community matron was here yesterday with the pharmacist, but that was coincidence, I think they know what each other are doing, they can pick it from the book which is a great idea.' 05A1T1

There were very few examples of where older people, family carers or paid care workers entered information that could be shared. For family carers who were not living in the same home, knowing what was happening and that everyone involved in providing care had the necessary information could be difficult. The quotation below suggests that the daughter was not sure that the professionals involved in her parents' care referred to the book. She felt she had to be very proactive to gain information and had taken on, in effect, a case manager role because she did not believe that anyone else was co-ordinating information exchange:

'I don't think they link up at all. They have a book that they write in when they visit, but do I get a feeling that each reads what the other is doing? No...Dad had a fall here, he told the carers (care workers) [when he got back], that information wasn't passed on to the physio at all…..when he left [the rehab bed] I said, you want to let them go home, that's fine but I need a plan of what's going to happen. I got what I wanted by kicking and shoving, it's the only way to get things, by letting people know exactly what you want. This is me trying to manage the situation, think ahead, what is this going to be like when they are home? And they were quite good. However, when the time limit ran out, I think it was about six weeks, all the services disappeared…. There should be a health warning if you are going to face these issues, that unless you have got someone on the sidelines making sure things happen, I hate to think what might happen.' 33CA3T1

In contrast, the few patients using telemonitoring systems saw a direct relationship between information they entered on to the system and receiving a response from services. It was data that could also be accessed by different professionals:

'I am on [telemonitoring], twice a day I answer its questions, that go down to the pulmonary team (in hospital). If there are any problems they will phone me or they will phone community matron. It is also used by the respiratory team at the hospital. It all meshes it all feels so comfortable, if I want to drop into the system I can…If the community matron is not on duty then one of the team will come in, I have met them all, they know my name.' 13A1T1

Whilst some professionals in the different IPW models that were using e-records and could access GP systems (see section 6.2) older people were not so aware of *how* communication was achieved between services, although they were pleased when there was evidence of shared communication and its consequence:

'If I need a new medication, they will find out if I need it, why I need it, explain what it is doing and take time out, and I think they have a weekly meeting down at the surgery now with the GPs, and the nurses.' 13A1T3

This was not a robust system. In the same site a family carer was key to her relative having her medication monitored and when necessary changed:

'If [patient] has to have a warfarin test, and that varies from one week to three weeks back to one week, changing medication. I have to take the book to the surgery to be photocopied, they issue the prescription... nurse at surgery takes blood test otherwise they have to go to the hospital (possibly weekly), they had problems with someone coming in to the home to take blood, no one ever seemed to organise it, although they said they would.' 04CA1T2

Participants were also able to make comparisons between different models of IPW. This older person had received care from the integrated team IPW model and following discharge had been referred to a community matron who worked as part of a case management IPW model. His wife had noticed a different level of communication and coordination between the services:

'Community matron said that she'd been to a case meeting at the surgery and [GP] had gone through all her cases and (I) was one of them, so they've got a good tie up between them, (my) wife was pleasantly surprised to have health services working well together.' 04A3T3

2. Who took responsibility for the coordination of communication between professionals and organisations and the role of social care (including privately paid care)?

The collaboration model of IPW was often described by older people and carers in similar terms to the case management model. This was particularly true for those in A6, where two community matrons worked alongside other health care professionals. These community matrons were adamant they were not working as case managers in the sense that they did not always co-ordinate who visited the older person or oversee all referrals and so on. They did not hold an exclusive caseload. Nevertheless, in A6, where a community matron was involved, comments echoed the older person's experience of case management, of not needing to access services or follow up issues because they knew their care was being discussed and reviewed and the community matron could cover for other professionals:

'...*from what I can gather someone phoned me up, I forget who it was, one of the respiratory nurses phoned me up and I said about something and she said 'oh damn [community matron] was just in here a minute ago, I could have discussed it with her'. So I know that they do discuss it. And if they feel my diabetes is wrong they (community matron) get in touch with the diabetes nurse, or diabetes nurse will get in touch with the community matron.... and they also know when I am in hospital they will look it up on a screen...so I know that they are looking out for me all the time.'* 85A6T2

In the following quotation, also from the A6 site, during an episode of acute ill health, a nurse was involved but it was the GPs who were recognised as leading the communication with other services, although the decision to keep her at home and not refer her to hospital was because her brother was able to be the carer:

'The doctors came in every day and one doctor did at night as well....Yeah, ooh doctors were getting in touch with this one and the other was getting in touch with that one and so it ran pretty well. They had wanted to take me in to hospital but my brother said it's alright, I'll look after her, I don't want to go in anymore.' 77A6T3

Having a professional to communicate on your behalf, or validate the older person's concerns was often valued as a source of comfort and confidence and was most likely to occur in the case management model. There were numerous examples of case managers (CMs) liaising on older people's behalf with hospital consultants and several talked about not needing to contact the GP because they knew the CM would make the contact if needed. However, patients who had an intermediary could also feel powerless to influence communication between professionals:

'She'll say 'oh I'll talk to the GP about that' and then nothing happens. 'Oh I'll have to get advice from the GP' and doesn't come back to me at all. They don't communicate very well with each other, not at all.' 32A3T2

Patients in all IPW models often identified themselves as being the 'hub' for information exchange between professionals:

'My matron, if I'm not well will come round and see if I need a doctor, (referring to the diabetes nurse) she phones her, they don't actually work together but I get messages to give to the next person.' 11A1T3

This patient took an active role in organising communication between professionals based on what she viewed were her priorities of care. She was the expert in how her care should be organised:

'The professionals actually communicate through me, not with one another, they do it through me because in my opinion the priority must be for the district nurses because of my leg... and I meet everyone around them (the

district nurses) like the physiotherapists...they don't know what's going on with each professional, I tell them, if I didn't tell them they wouldn't know.' 64A5T2

It was not a role that everyone wanted, and it was problematic if key services did not listen to the older person or their carer. Then they felt diminished and not valued. It was a role that was particularly difficult to sustain when the older person had contact with multiple services spanning primary and secondary care. The older person below saw it as nobody taking responsibility for communication about her care with the consequence that appointments were missed:

'I'm saying that everybody knows but nobody knows and there's nobody in charge. The person that's supposed to be in charge thinks all the rest are in charge, you give the message out to all these people, they've all got the message but who's the one that's going to do it?' 65A5T2

3. The ability of the IPW models to link with services that were not part of the NHS

Communication between health and social services largely did not feature much in the patient and carer interviews. The focus was on how communication was achieved between the primary health care services and/or hospitals. It was only at points of crisis, or when a person needed to be reassessed that there were examples of active communication across health and social care. In this example, this woman's husband was assessed as not needing continuing care and she describes how the social worker liaised with the GP and hospital to offer counselling support.

'Well it was when the social worker and somebody else came to talk about NHS ongoing care, but the domains they have to assess people on... you have to be critical or whatever and only on two of them did I approach any serious level, and my daughter came...and she was upset and I was obviously upset, and the social worker said 'well I think that you need to go for some sort of counselling or therapy'; and she got in touch with my GP and I think he communicates with this group in [hospital]. 50A4T2

6.9.2 Patients' understanding of their condition and treatment (Informational Continuity)

As discussed earlier the older people in the different IPW models had different expectations of outcomes.

In the integrated models of care, they were more aware of the use of checklists to monitor improvement and by the final interview could point to evidence of improvement and recovery but also the ways professionals delegated work or specific tasks to more junior staff (e.g. from physiotherapist to physiotherapist technician). Several older people did not see the value of being monitored in this way. Similarly, when case managers reduced the frequency of visits or asked district nurses to call in their place, older people often saw this as a reduction in the quality of the service (and not a sign of improvement or good symptom control):

'When the physio was able to come in three days a week I was able to get the calliper on to get up and walk down the corridor. I did the length with two or three stops...but that system broke down she went off on a fortnight's holiday and one of her colleagues came in once a week and it seemed to be at that point that my stamina started to fail. I wasn't keeping up that exercise and it was more than the house carers (care home workers) could take on to supervise me.' 34A3T2

Where care was wholly managed by primary health care staff older people and their carers knew what their treatment was and who would be providing it. Similarly for those in the integrated model who did recover functional ability there was clarity about the purpose and efficacy of the treatment.

In sites A2 and A4 there was a core group of patients, who in addition to the IPW model they received, were being treated by services from more than one hospital and medical specialist. There were examples of individual professionals trying to improve communications about treatments and medication prescribing between organisations but little evidence of how this was systematised or how any overview of the patient's condition was being shared with the individual and others involved in their care:

'So really, I am under three sorts of system, I see [cardiac specialist], I see [renal specialist] and I also see the pacemaker clinic at [hospital].....we went to see [renal specialist] three months ago, in the beginning we used to see her more often but just recently we see her every three months but where [cardiac specialist] is concerned it's every six months and the pacemaker clinic is every six months, but really where we stand at the moment... until I see [renal specialist] in a few days, I don't know where I am at the moment, she seems to think things are going pretty well. 22A2T2

Apart from those older people who either were themselves able to manage and co-ordinate their care or had family carers who could take on this responsibility, none of the IPW models studied were robust enough to consistently maintain links and information about treatment between different services. The different IPW models had strong and weak links or ties to particular services. Thus, community matrons could work closely with GPs but therapists and specialist nurses in the integrated IPW model had more tenuous links to GPs.

6.9.3 Relationship with one or more professionals over time (Relationship Continuity)

Over nine months people's needs and relationships changed. What was important was the level of confidence that older people and carers had in different professionals and the extent to which their story was known between services.

In the case management model there was the greatest clarity about whom they could contact and who had oversight of their care:

'I know I can call on them, they understand and the community matron knows who to go to, to talk to, so it's so positive coming out of this. They are there but they are not in your face, they've got the balance right. Knowing that they are aware gives me a sense of calmness, sense of wellbeing... if I need something, or something sorting out or someone to talk to, they are there and they never rush me when they come in, it takes as long as it takes, it is all good.' 85A6T3

This kind of relationship was evident in the other models of IPW although the time limited function of the integrated model militated against it happening as frequently. Here referring to district nursing support, one person said:

'If something went wrong I would definitely call the district nurses, definitely my lifeline, the district nurses solve everything, because what they don't know, they know who does.' 64A5T2

Relationships with individual professionals for this patient population were important but were often not exclusive. When asked at the end of data collection many of the older people said they would still contact the GP independently and seek referrals to other services or saw their family carer as the person who co-ordinated care and knew what was happening. In the integrated team model, the majority of carers and older people saw professionals as important but they did not necessarily see them as their main point of contact or as a key worker. From the outset the relationship was time limited. For many, because they were clear the integrated team were there to provide specific outcomes (i.e. increased function) this affected their decision making about seeking assistance with other health problems. They appeared more likely to look beyond the team for continuity of relationship, especially when recovery was slow or not evident and they felt that the team had 'given up' on them. This woman understood that the therapist input (twice a week) was to increase her mobility. However, for her the key professional was the Parkinson's nurse whom she saw weekly. This woman expected this nurse to liaise with the rehabilitation team on her behalf:

'She just sits like you and chats with me, she weighs me to make sure that I am not losing weight… and I would get in touch with her to start with, I feel comfortable talking to her…yes, I would call her first and then she would probably get in touch with the group (integrated team).' 47A4T1

For this population, receiving input from an integrated IPW model was often in addition to other long-standing primary care services. In this quotation below the older person lived in a care home and following a fall, was receiving input from member of the rehabilitation integrated team. She was also been seen by her GP and district nurse regularly:

'DN comes in regularly, she saw me 2-3 times for a leg wound and when I had IV antibiotics, GP comes in weekly, and can be seen as needed, private hairdresser and chiropodist also visit and we can pay for them if needed, occasional visits from the phlebotomist.' 35A3T1

One person commented that her case manager was the person who sorted out her day to day needs, but if she was really ill she would still contact the GP. In contrast, others would choose to go through their one professional and wait (even when symptoms were severe) for their input. The carer below described that if her husband's symptoms were to change they would wait to see their case manager, who they knew would be visiting shortly. This meant they did not have to secure a GP appointment, indeed for this carer having a case manager meant she did not need/want to access other services:

'straightaway the head is going round, the fluid in the lungs, is it going to collect again? And then we say well [case manager] is coming at such a time and he can examine. I mean the GP, we would go to the GP, and she would examine, but it's making an appointment, going up and down what not, and we know [case manager] is coming.' 17A2T1

Reduction of services

Over the nine months, older people in the case management and integrated IPW models could find a transition from intense input to less frequent contact to be difficult. Not everyone was confident that when help was needed it would be forthcoming, as one person observed, with regret, 'maybe she (nurse) thinks we don't need her so often' (10A1T2). People appreciated professionals that kept in contact through phone calls or occasional (but predictable) visits, the maintenance of relationship being important to a sense of security.

The importance of social care

At the end of data collection older people were asked who knew them best and several identified their home care worker as the person who saw them most frequently and understood their needs best. For this group of staff there were very few opportunities to become involved in structured communication with other organisations and professionals involved in the older person's care. Similarly, family carers relied on good working relationships with GPs or case managers but there were few opportunities to structure this communication.

6.9.4 Access to services and people's personal agency in co-constructing their experiences of care

The three IPW models were organised around the Service user and their carer in different ways. This could affect who visited, referrals and access to wider services (secondary and tertiary services, third sector and local authority providers). We were interested to know how evident this was to the Service user, if older people involved other services independently of the main IPW model and if there were perceived overlaps or gaps in service provision.

In all IPW models, access, referral and liaison to and with different services were most apparent when primary and secondary health care services were involved. How well this was achieved related to the complexity of individuals' situations. As already noted, links to hospital and social care services were less well developed than primary health care.

Across all the IPW models where there was an escalation of needs (but most noticeably in the case management and collaboration models) access to multiple hospital and therapy services were triggered by crises, new and unresolved problems, and symptoms that were causing pain or distress, see, for example, Figure 16 Service Use Visio 85 (p127). In contrast, for the integrated model of IPW, an experience of ill health such as cellulitis, a fall or the development of a deep vein thrombosis, would mean rehabilitation would stop and resume later.

From the patient perspective what was important in this situation was knowing that there was someone overseeing the multiple referrals and encounters. This older person appreciated that the community matron '*had her eye on him the whole time*' especially as he recognised that his health was deteriorating:

'They are fighting a losing battle at the end of the day, we all know there is only one way that this will end, but they are trying to make it as comfortable as possible.' 13A1T2 (comment following a hospital admission for respiratory arrest)

What became increasingly important when accessing different services was knowing that underlying that process there were key professionals working with the older person and their carer at each stage of the illness trajectory.

Organisational demarcations became more apparent when people needed social care input or support from the third or voluntary sector. Although the case manager for this patient did make the patient or carer aware that there were other services that could be helpful, it was left to the older person or carer to make the contact, a pattern that persisted over the nine months:

'Age UK now they were good advising me, we have got a key safe on the outside of the house and they were very helpful and they put me in touch with social services, because Age UK would be able to do it for us but they needed a letter from social services...in fact Age UK couldn't believe that we got no financial help whatsoever...they were very concerned and the lady I spoke to said 'if then your savings start to go down let us know and we will put you in touch with the right people... the community matron told me to ring them and find out about it.' 10CA1T3

The costs of paying for social care or obtaining equipment were recurrent themes. Even in the integrated team that included social workers as part of the team, there were accounts of delays in treatment because mobility aids were provided by other services.

6.10 Older person and family carer initiated access and co-construction of care

The consensus event in Phase One (section 5.3) had emphasised the importance of being listened to by the different services and in the case study phase we considered evidence of older people and carers being able to influence or shape their care.

Across all three models there was evidence of older people knowing that their opinions were listened to (as well as examples of when they were not). Inevitably, in the IPW models that had open ended commitments there were more examples of patients negotiating their care and sometimes being able to influence decision making about services. This patient described how she was enabled to stay at home with the support of the GP and the community matron. It also makes explicit that the decision involved several professionals that were willing to support the person at home:

'Well between the community matron and the respiratory nurse I can't fault them, really just excellent. GP came and saw me I was in bed, and I thought well not to worry I'll be alright tomorrow, this is just me, and tomorrow came and I got worse, really, really worse. GP came and she said it was mild pneumonia and she said 'I don't suppose you want to go into hospital?' and I said 'no you are absolutely right, I don't' and matron did fix that up.' 87A6T2

Older people and carers however talked of having learnt that they had to be more proactive, to write letters, to check that professionals were aware of their often relatively simple priorities, for example, to walk in the garden. This woman was very aware of being alone but saw she had very little control over her life with all the different practitioners and services;

'No. I feel very helpless if I am honest... and I think, well I hope I am fairly articulate, but I'm not pushy and I think nowadays, you've got to be pushy.' 32A3T2

Overall, there were examples of the potential for co-production that could build on existing trusting relationships with key professionals. We did not identify much evidence of older people or family carer involvement in planning for the future or in setting shared goals for care, although, in a few cases there was evidence of practitioners preparing people for a reduction of services. Apart from the employment of care workers to provide personal care there was no evidence of patients directing care, or benefitting from being able to use personal budgets more broadly to organise care.

6.11 Discussion

This chapter has provided an overview of how IPW care was organised across the six sites, people's use of services over time and their experiences of the different dimensions of continuity of care. Two factors emerged as important in their experiences of multiple health and social care services. These were relationships with different service providers that were maintained parallel to the IPW model and the patient or carer's confidence that someone knew about their case and that the information was being actively shared.

Older people in the integrated team model had, by definition, been referred from other services for this time limited intervention. Whilst referral pathways to this model were clear, less well developed or discussed was how the patient story was shared with other health and social care services and how links might be made with the wider network of care. Thus, when new symptoms or problems emerged it was the older person or carer who took the initiative in contacting other services.

For the case management and collaboration models access to services could be mediated by a case manager or lead professional respectively. In the case management model there was more evidence of the case manager managing and (possibly) reducing demand on other health care colleagues. In the collaboration model there was more flexibility and greater access to services, simply because there were more opportunities for referral (and often patients had more unresolved problems). However, what was important to the older person and carer was that this was a co-ordinated and monitored process of care.

Social services and social care and third sector providers were present in the systems of care but from an older person's perspective, though valued, stood apart from the health care services. This was the case even when the professionals involved shared budgets and even when some of the professionals or teams were housed in the same offices (in the statutory sector alone).

Patient level data was collected meticulously and the economic analysis provides unique micro-level information about service use and costs of patients with chronic conditions receiving multidisciplinary care under a range of different IPW arrangements. However, the analysis is limited in several ways. Inaccuracies could have arisen because data were collected by self report over a relatively long recall period (of three or four months). Also, the relatively small samples limit the conclusions that can be drawn, and mean that findings should be interpreted with caution. Resource use and costs presented reflect the characteristics of the patients recruited to the study, and should be considered illustrative case studies. Selection bias may have occurred in the recruitment process and the patterns of resource use and costs may not be generalisable beyond this study. Further analysis of the costs and benefits of the different IPW models is warranted in particular the question as to whether case management might be more effective at containing primary and community care costs than collaborative arrangements. However, no measures of outcome were collected within the study, so further research is required to test this suggestion.

Overall, there were many examples of when the systems worked well and to the satisfaction of the older person and their carer. This was more likely to occur where there was an established case manager or someone who emerged over the period of data collection as taking on that role and responsibility.

7 Patterns and professional perspectives of interprofessional working

This chapter explores professional perspectives on IPW in the provision of treatment, care and services. It describes: 1) the patterns of IPW identifiable from data from the older person’s use of services; and 2) the perspectives of professionals about the effectiveness of IPW. During Phase Two of the study, 33 professionals from across all six study sites were interviewed. They were selected on the basis of their direct involvement in the care of the Service users being tracked, and/or their leadership role in the IPW providing that care. Practitioners providing services were interviewed both to obtain their accounts of the specific services provided, and their views on the IPW model's appropriateness and effectiveness for their particular clients. Group leaders were asked about their views more generally regarding the model of IPW operating in their site.

7.1 Patterns of IPW

The data from the Service user interviews, review of their notes and interviews with the introducing professional or professional most involved in their care were brought together to create a narrative about how care was planned, provided, reviewed and received across the different IPW models. These data were displayed (9) through diagrammatic timelines using Microsoft Visio software. Analysis by three researchers separately, then jointly, revealed a number of patterns in IPW. These were further explored against the context visible in the diagrammatic timelines and the narratives to suggest possible configurations of IPW context, mechanisms and outcomes.

The patterns identified were

- Compartmentalised working within a defined multi disciplinary service team with communication to other professionals on discharge.
- IPW responsive to long-term conditions or disabilities.
- Intensive IPW in response to change in the person’s situation or health.

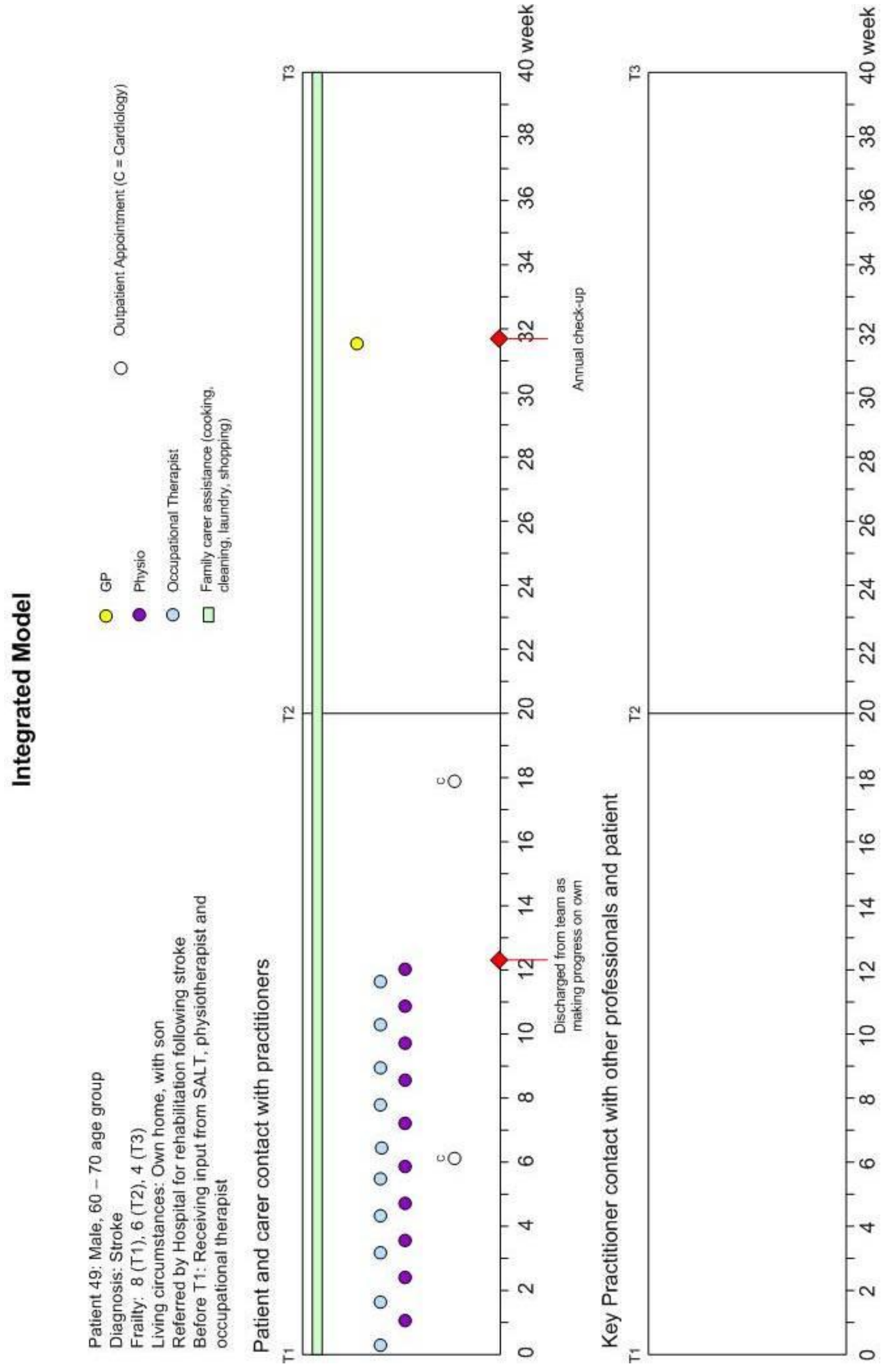
To some extent these are ‘ideal’ types: for any individual these patterns could change over time in response to changes in that person’s situation or health and wellbeing.

There were examples of these patterns of IPW in each of the models studied, and over time evidence of change in how IPW organised itself around the older person. However each of these patterns of IPW emerged as more dominant in three models studied.

7.1.1 Compartmentalised working and IPW internal to a defined service team

This first evident pattern of IPW was that of compartmentalised and IPW internal to a defined service team. This was most recognisable for those older people who were recruited through one of the integrated, time limited service teams. An example is given in Service Use Visio 49 (Figure 18). The upper timeline provides the detail of the patient contact with different members of the team in the early time period and then subsequent contact with their general practice. The lower timeline shows little reported contact between different services. The members of the integrated team describe the context for patients in this pattern of IPW in terms of an ethos of aiming for recovery and self management and their working practices of discussing patient therapy goals and progress informally in their shared offices as the need arrives. The practice of the team on discharge was to write to the person’s general practitioner detailing their input and reporting that they had been discharged from the service.

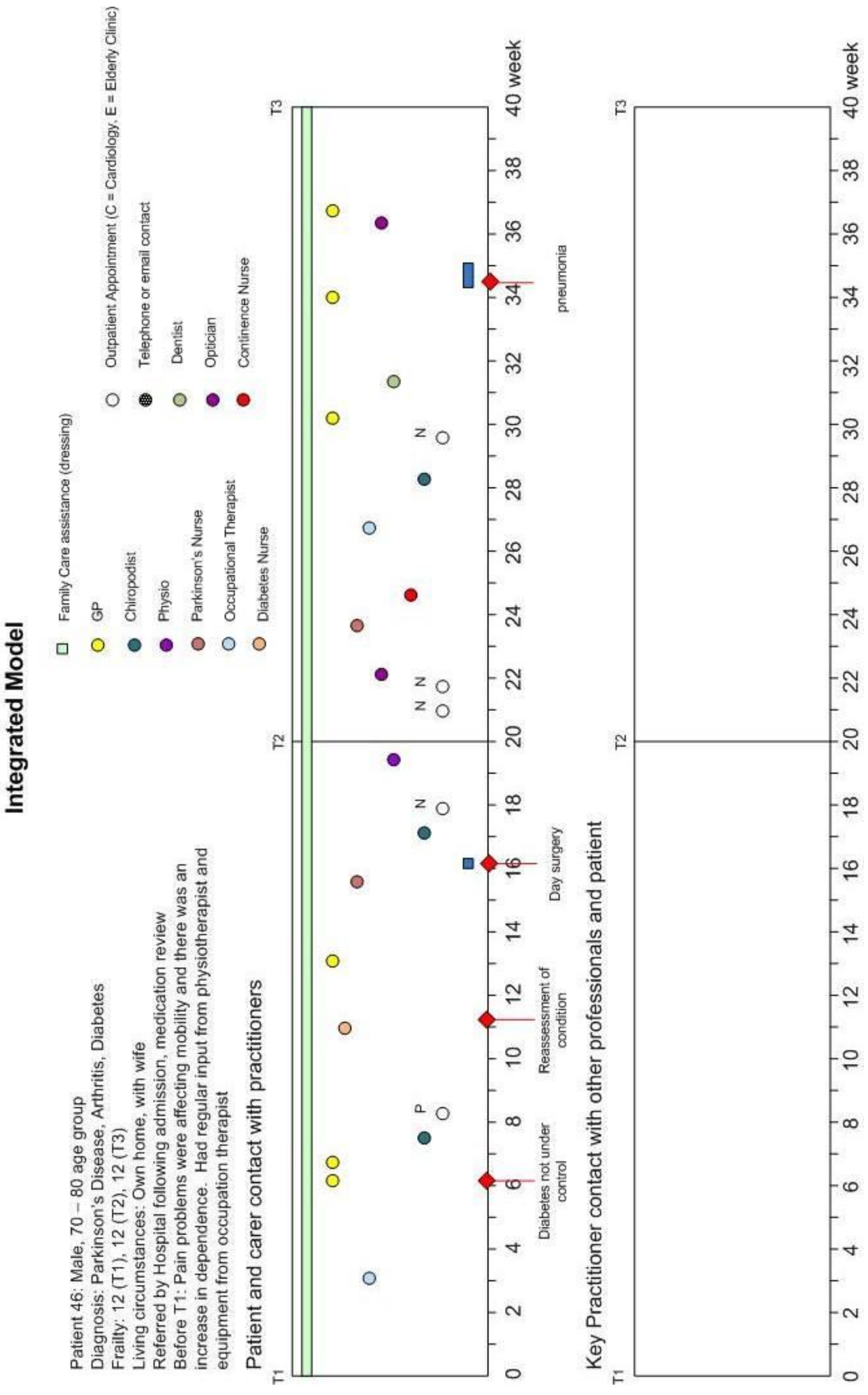
Figure 16 Service Use Visio 49



This ‘compartmentalised’ provision was also evident for independently contracted services such as dentistry or chiropody which had little direct communication with other services or professionals (Figure 19, Service Use Visio 46). It was marked also for services which were privately paid for by the older person. IPW was circumscribed by this framework of contractual relationships and referral etiquette framework.

Another example of ‘compartmentalised’ provision and minimal external contact was within the social care arena when a voluntary organisation was commissioned to provide a specific service e.g. household maintenance tasks to those who met pre-defined eligibility. The voluntary organisation completed a form which they sent to the Local Authority budget holder on the older person’s behalf, with evidence of eligibility, seeking permission to authorise and thus pay for the service. Again, the contractual arrangements provided the specific mechanism of the IPW.

Figure 17 Service Use Visio 46

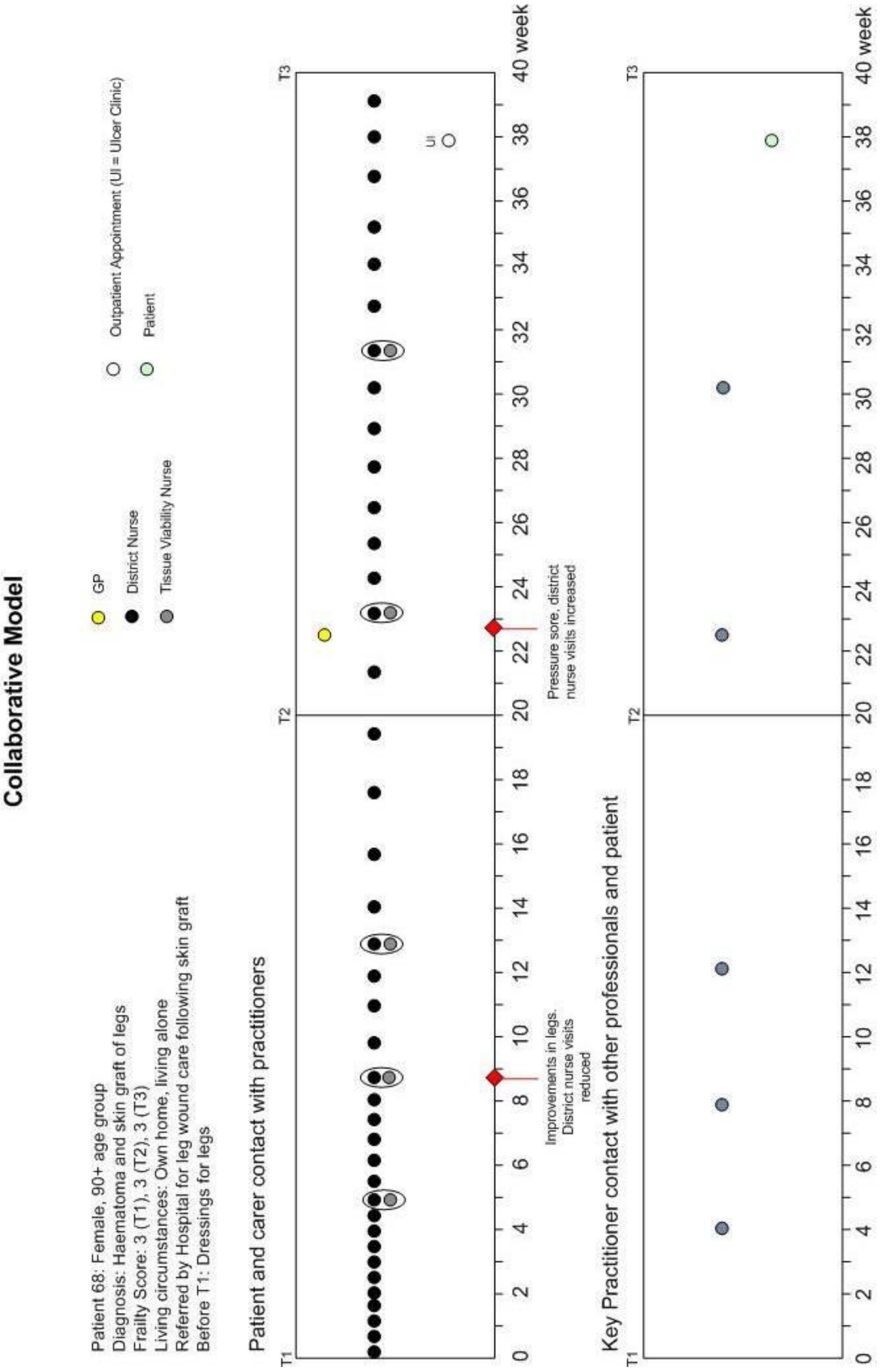


Patient 46: Male, 70 – 80 age group
Diagnosis: Parkinson's Disease, Arthritis, Diabetes
Frailty: 12 (T1), 12 (T2), 12 (T3)
Living circumstances: Own home, with wife
Referred by Hospital following admission, medication review
Before T1: Pain problems were affecting mobility and there was an increase in dependence. Had regular input from physiotherapist and equipment from occupation therapist

7.1.2 IPW responsive to long-term conditions or disabilities

The second pattern for IPW was that which occurred sporadically and as required between services or professionals, over long periods of time and was framed by addressing ongoing, relatively stable health problems and/or disabilities. The pattern was most evident among situations where older people were introduced to service support through the collaborative model of provision of care and in respect of some of those who had been supported within case manager models. This form of IPW seemed to be responsive to ongoing situations in which different inputs from different services were needed in order to maintain the person as they are, or to try and improve a long term problem. Service Use Visio 68 (Figure 20) demonstrates the intermittent involvement and communication between a district nurse(s), a tissue viability nurse and a GP when treating a person with a chronic venous leg ulcer.

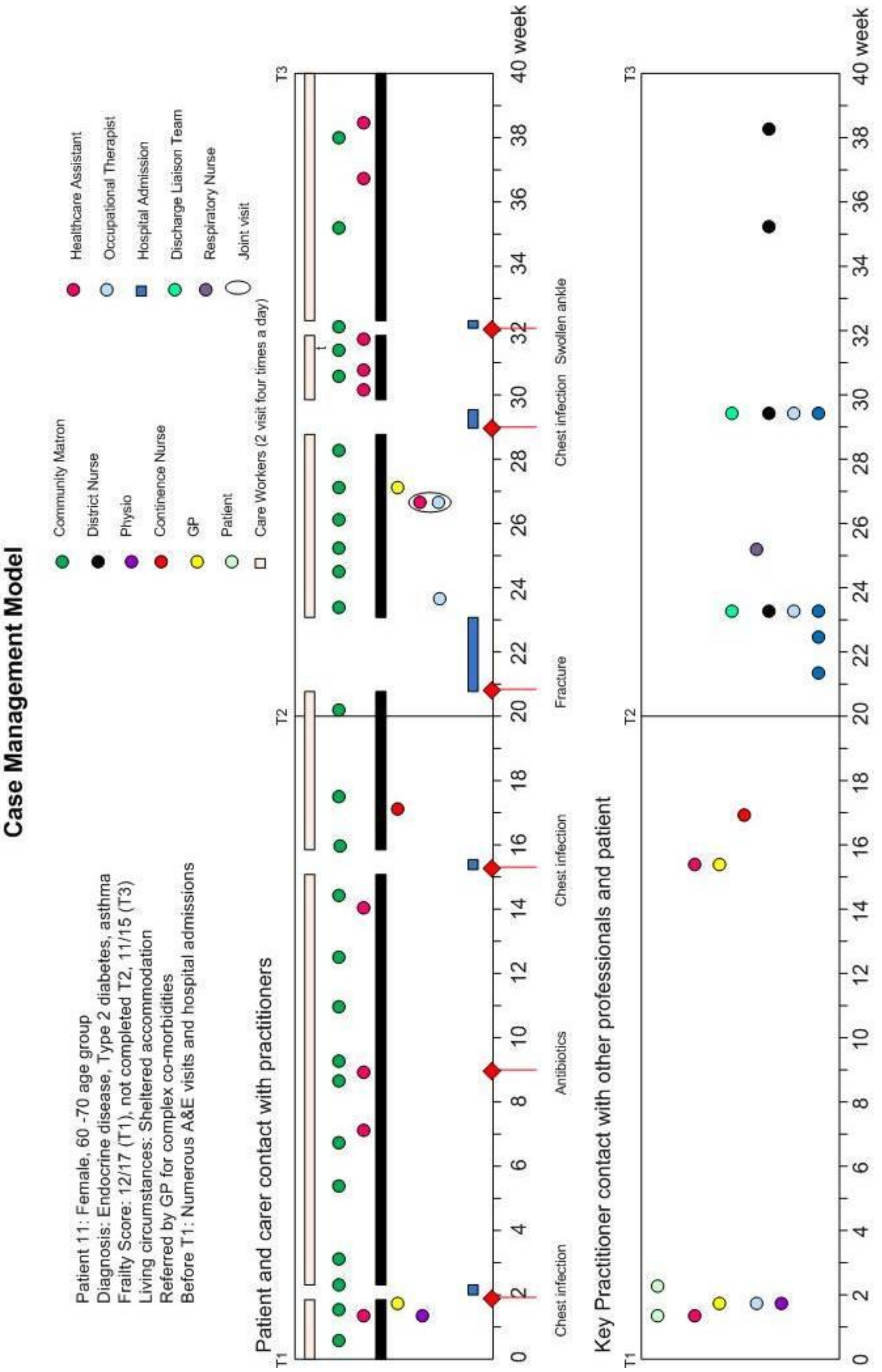
Figure 18 Service Use Visio 68



The level of IPW remains relatively steady in such a model and the mechanisms vary from paper or electronic communication with each other, to face-to-face consultation or to joint visits to the home of the person receiving care.

Management of medication, including repeat prescribing, review, dosage alteration or monitoring of administration, was a common reason for this type of intermittent IPW. (Figure 21, Service Use Visio 11). This could involve a spectrum of individuals and services across primary, secondary and social care. These patterns were most evident in older people introduced to the study via collaborative and case management models.

Figure 19 Service Use Visio 11

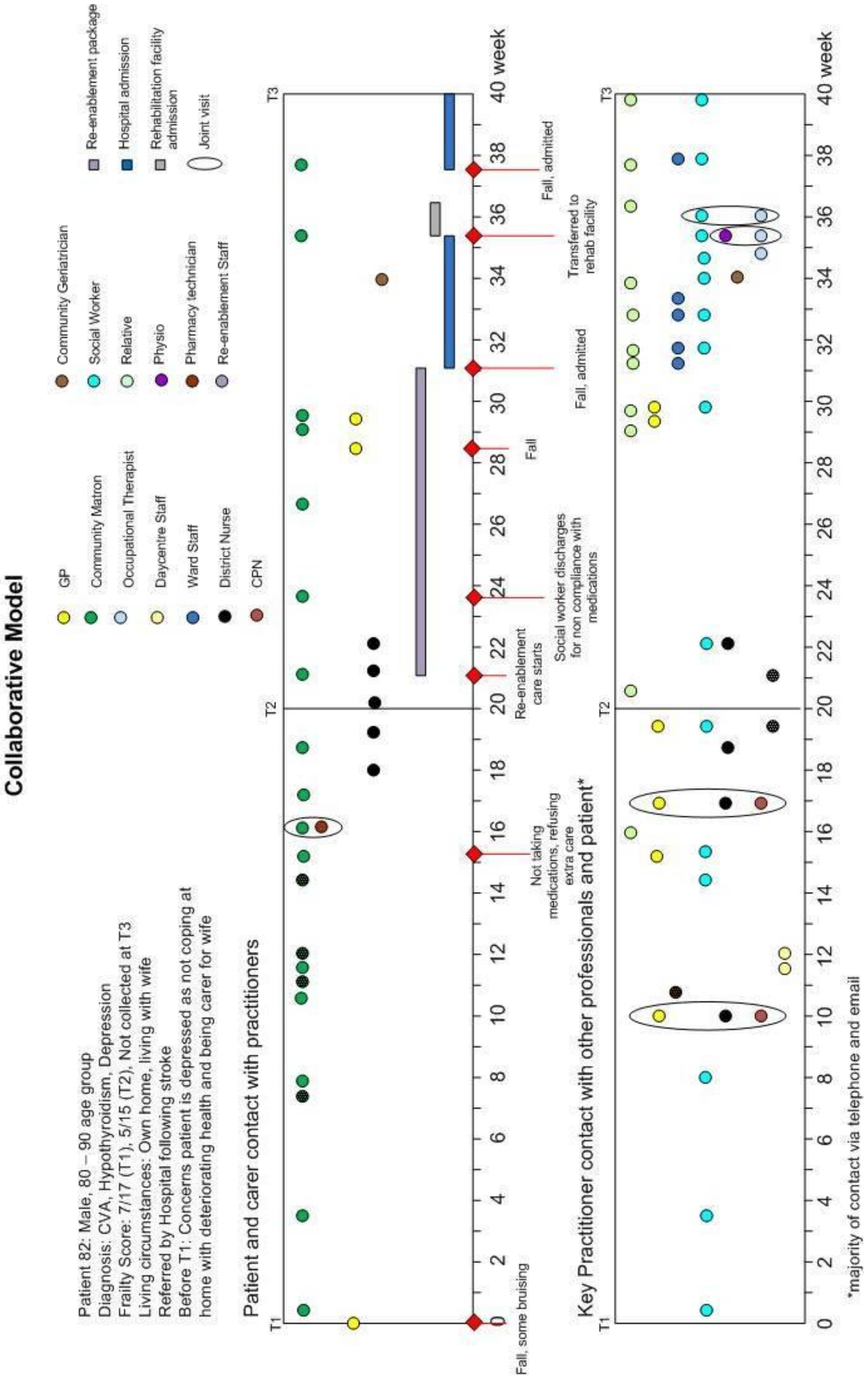


7.1.3 Intensive IPW in response to change

> The pattern of intensive IPW was particularly visible in those introduced through the collaboration model. The intensity of the IPW was a response to changing circumstances including critical health events, increased disability, hospital admission, or a critical event affecting a family carer, often a spouse. At these points more professionals from different services and organisations became engaged. Combinations of face-to-face, telephone and other means of communication, planning and reviewing came to the fore, as did joint visits and consultations.

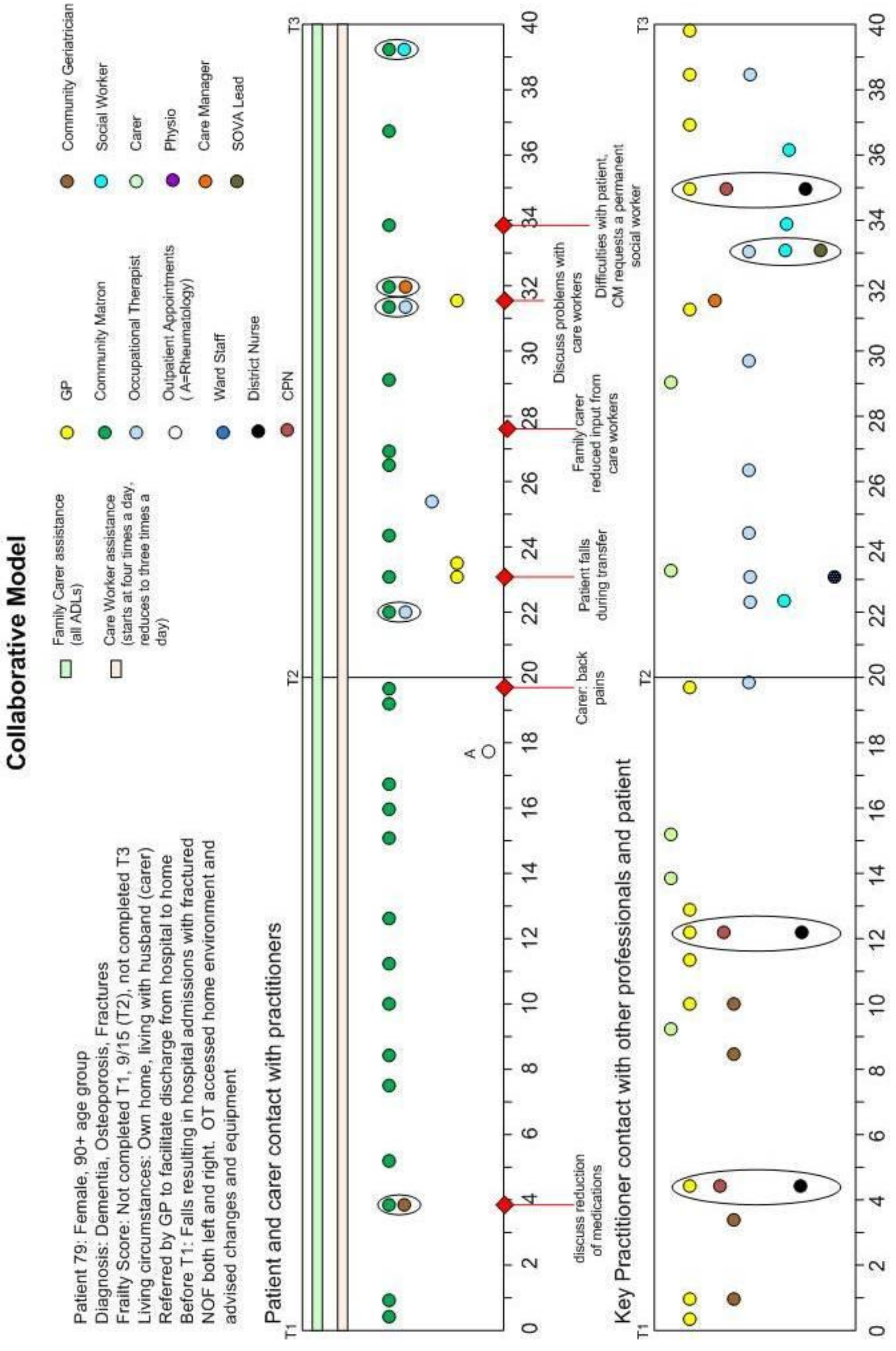
Service Use Visio 82 (Figure 22) illustrates the escalating level of IPW contact in response to critical events and hospital admissions. It also shows the underlying complexity of the older person's situation. He has caring responsibilities for his wife and has been judged 'non-compliant' by one professional (social worker).

Figure 20 Service Use Visio 82



Service Use Visio 79 (Figure 23) illustrates points of intensity (of IPW) which were triggered by the older person’s concerns about his wife whose ability to maintain activities of daily living was declining. In this pattern there were communications between professionals that were not mirrored by contact with the older person, suggesting an ongoing process of follow up and/or review between professionals.

Figure 21 Service Use Visio 79



7.2 Professional perspectives

Service managers and IPW senior clinicians in all cases study sites highlighted the importance of local policy imperatives for integrated working between professionals and agencies in order to meet wider strategic objectives in the local health and social care economy. These objectives aimed to both enable older people with long term conditions and disabilities to live well and independently at home and also to reduce unplanned hospital admissions and lengths of stay in acute hospitals. They were being achieved through increased support, treatment, therapies and re-enablement in primary care and home settings.

In this context the 33 professionals, mainly therapists and nurses but including two social workers, were interviewed regarding their perceptions of measures of outcome of effective IPW. In these interviews the professionals emphasised aspects of infrastructure they found valuable in supporting effective IPW.

7.2.1 Measures of outcome of effective IPW

The professionals offered a range of views. Some were Service user focused and others were service/professional focused.

Patient and user focused. Common responses were of the tangible, although not necessarily measurable, direct patient feedback on satisfaction and '*happiness*' with the service:

'Probably patient satisfaction has got to be the biggest clue, if the patient and the relatives are happy.' A4P47 therapist in integrated team model

Some professionals offered a more specific outcome benchmark linked to patient knowledge of the detail of the care, support and treatment offered to them by each professional and service:

'If the client seems to know what is going on and have a very clear vision of what the plan for the next month is, I think, yeah that's it, if they know exactly who's visiting when, and who does what' A2P17 nurse in case management model

One interviewee expanded on this and provided examples of agreement about service needs. The positive outcome in one instance was agreement about the planned withdrawal of some services:

'*He was on the point of saying 'no services'. His condition made him very tired and somebody was going in every day or twice, two people at different times in the day, popping in, you know... So I organised the case conference* [with the person in their home] *and he and we all agreed who* *was going to visit him when and who didn't need to.'* A2CX16 nurse in case management model

In this example and others, mechanisms of co-production of plans and acceptable solutions were reported in effective IPW. This was reported as different from a measure of satisfaction.

The professionals also identified new or changed service, treatment or care as a result of their referral or intervention as an outcome of effective IPW i.e. a measure of access to services. However, this was more contingent on service and contractual factors and is discussed below.

Shifts and changes in the extent of publicly funded provision were contextual aspects that impacted on the extent to which the professionals could judge the outcomes of IPW i.e. a constraint on both co-production in problem solving and also in access to services. In most instances the professionals reported tightening-up or raising of eligibility criteria, which reduced the possibility of professional to professional IPW. It was reported to be replaced by increased provision of information about local commercial services to older people and their family members:

'I wanted to refer to chiropody services but they are very reluctant to go out into the community now unless there are foot ulcers, so [I] gave [the patient] information about private chiropody, as well as private dentist and optician.' A1P09 nurse in case management model

'The social worker didn't want to know because they [the older person and spouse] have got too much money. I know you are not supposed to recommend, but I did recommend this company [private care agency] because I have never heard any complaints about the carers (care workers).' A1P10 nurse in case management model

Service and professional focused. There was a range of views on the measures of effectiveness which were linked to the service or professional group.

Those who were part of a service with very specific service objectives, such as community matrons, cited those as measures of effective IPW:

'*I suppose the bottom line is the [hospital] 'aversion', it's keeping people out of hospital I suppose. Well that's the bottom line and that's what we get judged on'.* A1P05 nurse in case management model

Other professionals offered a more intermediate measure of outcome of effective IPW that depended on whether their recommendations or referrals were accepted and acted upon by another service:

'So if I've done a new assessment on somebody and I generate referrals as a result of that, to say social services, physio, podiatry, you know, and link

in with the GP. I think when you go back and review; have those referrals been actioned? You know? Have those people you referred to communicated back to you as the sort of referrer?' A2CX16 nurse in case management model

Others qualified this measure by stressing the value of a more relationship-based form of IPW:

'If you're trying to improve the home situation, the home care situation for a patient, if you have that meeting or that discussion with the Social Worker and things change as a result of your conversation, then you will know it's been successful.' A5CX63 nurse in collaborative model

Another example of relationship-based IPW was provided by a community matron describing weekly meetings with a GP to discuss '*unwell*' patients in which they generated new solutions in working with individual patients and the GP gave positive feedback about her achievements.

A number of professionals mirrored the older people's views in measuring outcomes in terms of the timeliness of the professionals or services acting on their referral:

'*What perhaps I see as a high need, others don't....for example the patient that I refer to the Parkinson's nurse specialist, I know him very well, she doesn't know him from Adam and he's just a name… He wants her to react now because this is important and she thinks 'oh, it's another patient' and it may take her three weeks to get there. The sort of sensible bit of me understands that completely but there is always a slightly more subjective bit of me that thinks 'I want this man to have all the support he can have and why can't he have it now?'* 'A4P47 therapist in integrated team

Some professionals offered a service resource perspective in that measures of good IPW were of saving '*professionals' time'* through avoiding duplication of effort or allowing each to use their more specialised knowledge or skills.

A counter-view to this was also offered. Some suggested that the delineation between which professionals, staff grades or service could do which 'task' could lead to multiple professional involvement that was both costly to the older person and costly to the service. Contractual and operational influences were evident in this perspective.

One example further revealed the potential dangers in the division of labour in IPW being determined solely through contractual arrangements:

'*I'd tried to get the GP out to see this patient as it was beyond me but the practice manager said the [community matron] service was sold to them as able to do this and that is what they were paying for... the son tried to get a*

GP to visit but was told that as they had a community matron they couldn't have one.' A1P08 nurse in case management model

However, some professionals argued that sharing of roles or processes was a measure of effective IPW. These types of arrangements were cited as being one way to reduce overall time spent by professionals in processes, but they also allowed greater speed or efficiency in delivering a service. Most of the examples given were between community health services and Local Authority social services:

'We work very hard with Social Services, and they accept us as Trusted Assessors...So as long as we complete their necessary paperwork and are clear about what we need, they will accept our assessment for a care package and put the care in without them having to go and do their initial assessment.' A4P47 nurse in integrated team model

This was also reported on a more *ad hoc* basis in other areas:

'With the [local adult social services office], I don't know, they've always been happy to discuss people and if I've seen someone at home and I know that they need an increasing care package, they've always been happy to just say 'yeah, right, we'll do it' and that's fine. They follow up quickly with an assessment and at times I've said 'I know you're really busy, but I'm happy to fill out your assessment' and they've sent me the paperwork and we've just done it, so at least they don't have to leave the patient waiting while they try and find someone who can go and see them.' A5CX19 nurse in collaborative model

7.2.2 The supporting mechanisms for effective IPW

The mechanisms and aspects of infrastructure that professionals described as supporting effective IPW will come as no surprise to anyone versed in the literature of team-working and IPW (see chapter 3). However there is value in briefly reporting them here as it is evident from their accounts that the knowledge translation into service delivery is sporadic, prone to unintended consequences and less than robust in the context of older adults living at home. This fragility is particularly pertinent in the context of a health and social care system in England that is undergoing further reorganisation against a backdrop of austerity. Two mechanisms are of particular note: professional relationship building and knowledge of involvement and activities of others in the treatment, care and support of the older person.

Professional relationship building. Most of the professionals described how their ability to work effectively was enhanced through processes that allowed the building of trust and thus professional relationships:

'It tends to be conversations, informal. When you have a relationship with other professionals through patients or shared accommodation it is very

easy to refer on. If you've done it once and it's been worth it then the professional will see the benefit of the referral for the next patient. There is a professional respect'. A6P77 nurse in collaboration model

This point of view was confirmed by another professional in a different area:

'Occasionally we get poor referrals from the community matron service and so we tend not to trust their referrals. If we got to know each other better that might ease.' A3P31 therapist in integrated team model

While many pointed to the benefits of co-location others could describe relationships being built over time through specific discussions with the Service user, by telephone or in person. These accounts were more evident among those working in case management and collaboration models. These professionals also recounted how reorganisations fractured the development of relationships:

'So everything is done on personal relationships as opposed to a systems process so now I'm swapping roles and areas with [another community matron] she knew everyone here, I knew everyone there. Now we've got to build up those relationships again and it does affect it, it does affect that referral process... it relies on previous working relationships it doesn't rely on this is our objective as an organisation.' A6CX80 nurse in collaborative model.

Other professionals described new centralised referral pathways to services which effectively precluded the development of professional relationships and trust. Examples cited were referrals to district nurses only through an administrative office and centralised call centre access for contact with adult social services. One therapist described a weekly central allocation system in adult social services that meant referrals might not even be considered for a week and then might be allocated to a social worker who mainly worked in another part of the county.

Interestingly, the accounts of relationship building tended to be between senior decision makers rather than those lower in single team hierarchies or providing direct services or care. The influence of differential status, presumed differential pressures on time, and hierarchies in IPW has been noted before. In these situations alternative mechanisms become important and are discussed below. Only a couple of nurses in the collaboration model gave accounts of sporadic direct contact with home care workers, a group scarcely visible in professional accounts, to establish if the division of tasks between the community nursing services and the home care workers were as planned. This nurse was one such exception:

'We do make a point of seeing the carers (care workers) periodically just to make sure everything is okay with them and because what we do in the

evening is we leave the evening insulin out in the fridge for the carers to give it and they also prompt him to take his medication, so we keep an eye on the medication from the blister pack. So just to say hello, everything okay, any problems? but it's informal if they happen to be there, we chat with them. We don't book in a day to physically meet them and we have the agency's contact number in case there's any problem.' A5P63 nurse in collaboration model

Knowledge of involvement and activities of others. Professionals generally develop a plan of interaction with an older person that is based on an understanding of which other professionals and services are already involved in their care. Understanding the detail of that without having to repeatedly ask the older person or take up other professionals' time in asking them are key mechanisms for IPW both in terms, not only of efficiency, but also of the differential status and access to professionals in an older person's network. Professional accounts underlined the importance of access to shared electronic records or at least records they had been given authorisation to view. A few nurse professionals in the collaboration and case management model reported they had authorisation to provide information to and view general practice patient records. More frequently reported was the recent establishment of the RiO electronic patient record system for community health services (172) which allowed them to electronically provide details of their own input, and also to view the input from others employed in the same organisation. Access to electronic record systems varied between sites and in different services within sites: some juggled with multiple systems and access while others managed with paper records:

'*Letters from the hospital go on the EMIS [IT system], so we could always check up on our screen to see what was happening. That's for the GPs use, it's a system used in all surgeries...We use the RiO system to find out about patients... we use Y [name of system] to input our daily contacts, and that's a system used by social services…. Y [name of system] is really useful because if you refer somebody to social services they immediately say 'Oh, yes it's on Y system ' and they can find out details, if they get involved they can see we are involved and vice versa.'* 69PA5T1

In contrast to such electronic communication and record systems, low technology paper records and communication books were shared between district nursing services and home care services (sometimes funded by the local authority and sometimes not), and left in older people's homes. At best these were a visible demonstration of the services working in harmony and were available to family carers; at worst they were mechanisms to log nothing beyond attendance in the home or medicine administration. However, by their very presence in the home, they were a tangible sign of inclusion of the older person and family carer in the IPW process although the extent of processes in co-production of wellbeing might be limited. These are themes that will be returned to in chapter 8.

7.3 Conclusion

The findings relating to the patterns and organisation of IPW, and to the professional understanding of IPW and how it was affected by organisational constraints and hierarchy, complement the findings discussed in chapter 6.

It was at points of crisis or transition that most could be learnt about IPW. At such times, it became apparent how responsive the different professionals were to the older person’s situation (including responsibilities for other family members), how they worked and communicated with each other and how constrained they were by professional and organisational priorities.

Chapter 8 considers what these findings demonstrate about the networks of care that support and provide continuity of care to older people.

Finally, we note the value of the Visio presentation software in illustrating the complexities of the Service user experience. It can aid understanding of the ways professional engagement varies as the personal circumstances of the individual (as well as organisational arrangements) change over time. Presentation of individual stories in this manner is particularly appropriate when sample sizes are insufficient to make robust statistical inferences. Instead, they provide a qualitatively rich account appropriate to the principles of realist analysis. We contend that the use of such presentational methods has considerable potential in illuminating and testing accounts of the mechanisms at work in complex interventions such as IPW.

8 Discussion and Conclusion

8.1 Introduction

Research on interprofessional working and interventions that support integrated working has in the main focused on how services are structured and organised (20), or on how interprofessional education and working can improve the ways services and practitioners work together (15, 16). The assumption (with some supporting evidence) is that better IPW and coordination of care, particularly in long-term disease management, will result in cost efficiency and improved care quality (41, 123). How the process of IPW translates to the patient level is less well understood, and little is known about which 'bundle of strategies' achieve the best outcomes (173). This study explored in detail the process of IPW within different models of IPW, in order to address these questions.

This chapter draws together findings from both phases of the study and discusses how they address the original research questions. It identifies key features within and across the different models of IPW that shaped how continuity of care (and effectiveness) was understood. It considers the extent to which current initiatives to support the vertical integration of care are likely to address the needs and priorities of older people and carers. The study's limitations are discussed, and recommendations are made for commissioners and practitioners and for future research.

8.2 Evidence of effectiveness of IPW

Phase One demonstrated the enduring and persistent challenges of defining IPW and its attributes. In England, IPW is delivered within a system where integration between health and social care and primary and secondary care is underdeveloped (174, 175). Phase One demonstrated that the organisation of IPW is not well documented in the research literature, nor is it clearly described at service delivery and recipient levels. Nonetheless, there was some evidence of 'within'-organisation understanding of the language of IPW and the infrastructure that influences how professionals work together. The systematic review and survey of providers showed that evidence of effectiveness and clarity of purpose was most easily identified in time-limited IPW based intervention.

Older people and their representatives in the consensus events were able to differentiate and discuss the significance of IPW at key points of transition in their experiences (e.g. episodes of ill health and disability and the wish to access other services). This was not reflected either in literature review or the survey and documentary reviews as a measure of how service managers evaluate the impact or effectiveness of care or service delivery.

In Phase Two, it was evident that IPW was more explicitly organised - and more easily judged by both the service and the Service user - when there were narrowly defined, explicit goals of recovery or prevention of exacerbation. The rationales for time limited interventions within the integrated models of IPW were clear. The orientation to recovery and rehabilitation meant that, compared to other models of IPW, patients in this group were younger. There were examples of patients for whom there was no prospect of recovery but who had not been discharged from the integrated model. This was because they still derived therapeutic benefit from therapist involvement and there was no appropriate alternative service to pass them to. Decisions to keep patients on the case load were at the discretion of individual practitioners. Time-limited models of IPW provoked anxiety in some patients, whose progress was not as rapid as planned, and dissatisfaction in others when care was delegated to technicians or stopped. It was also a model that was not flexible, it did not always suit the patient experience, especially when other illnesses interrupted treatment.

Ovretveit (16), in a review of coordination of care, observed that those who suffer most from poor coordination of care are the poor and vulnerable. In this study these were the older people that had ongoing and enduring health and social care needs with no obvious endpoint. Many of those older people receiving services that maintained their health, wellbeing and ability to remain at home, judged outcomes of IPW in terms of both the processes e.g. timeliness, completion of actions as promised and perceived expertise in tasks and also the quality of relationships e.g. being treated with respect and courtesy. These older people were mainly receiving collaborative models of IPW. The need to recognise the place of ‘process outcomes’ as linked to measures of effectiveness for older people has been pointed to in recent reviews of social care practice(176) .

In both phases of the study, effective IPW was closely entwined with those processes of care that promoted continuity of care through the presence of a key worker/case manager, and the supporting evidence that if they were sufficiently well known to the system then at times of crisis, professionals would respond. This finding reinforces earlier work on nurse led interventions in chronic disease management (177).

From the perspective of cost, patients in the collaborative model incurred higher primary and community health care costs. These patients had similar characteristics as those being case managed, raising the question as to whether case management might be more effective at containing primary and community care costs.

8.3 User-defined effectiveness of IPW

Various components of our study were used to address the question of whether it is possible to generate user-defined measures of IPW effectiveness. In the documentary analysis, interviews with service users and user-representatives, the consensus event and the case study interviews, we attempted to distinguish between processes of care and service-provision, and outcomes for the user. However, it proved very difficult to make this distinction. Indeed, there was a suggestion in the statements made by Service users that processes may be more important to them than outcomes. In this sense, the inability of the study to produce a clearly defined outcome measure may not so much represent a limitation of the study, as an indicator that process measures should be prioritised over outcomes if the intention is to give more weight to the Service user perspective in the planning and evaluation of services. These findings complement and validate the work of Freeman *et al* (152) and Parker *et al* (178)on continuity of care. Those processes may relate to organisational issues but the benchmark is the extent to which the service user is integrated into the organisational model rather than being seen as an external beneficiary of it. Some of the implications of this understanding are explored further in section 8.4 below.

8.3.1 Frailty as a measure of effective IPW for older people

As noted in chapter 3, measures of IPW effectiveness tend to focus on professionally-defined outcomes that relate to avoidance of unplanned admissions to hospital, resource use and measures of functional recovery. In preparation for Phase Two, the concept of frailty, and instruments available to assess frailty status (161), were considered as a more user-centred tool. As we have argued elsewhere (5), the concept of frailty has much potential in the evaluation of IPW for older people. Although frailty measures do not address process variables, the more comprehensive instruments encompass a wide range of issues - medical, psycho-emotional and social - that may necessitate multi-professional input. Some appear suitable for quantifying changes over time in the status of the older person, and thus provide an indicator for the responsiveness of IPW for community-dwelling older people (5, 179).

Tracking a sample of older people over time, we found that frailty was a useful indicator of increased need for support that captured, up to a point, the health and social care needs experienced by many of the sample. However, further work is required to understand more about the older person's social situation and networks of care. Frailty, as expressed by older people, was linked to their confidence in the level and reliability of support they were receiving, the frequency of social contacts and their own estimation of their ability to continue key activities important to them. These are aspects that other studies have identified as being important in understanding the user experience of frailty and vulnerability (5, 180). The findings of this study suggest that existing measures of frailty could be adapted to capture changes over time and have potential as a measure of effective IPW. Further research in this area, that also considers networks of care, could provide a basis for interprofessional review of the effectiveness of care and treatment, and identification of what should be strengthened or prioritised to improve the health and wellbeing of this older population.

8.3.2 Evidence of co-production

Health and social care policy has shifted in its emphasis over the last 30 years to reflect values of autonomy, responsibilities and rights - and not just at an individual level: particularly prominent at present is the government's vision of the Big Society, in which there is collective responsibility for health and wellbeing. The personalisation agenda and expert patient programmes (14, 181, 182) both promote concepts of individuals as partners and collaborators (and payers) in their care. Co-production recognises the Service user as a resource, in that value cannot easily be created or delivered unless the person actively contributes to the service (Health Foundation 2011). In a review of services for people with neurological conditions, Parker *et al*. (183) suggested that co-production is important as a source of patient satisfaction. Ferlie *et al*. (184) suggested that the extent of Service user co-production was a measure of network effectiveness.

The consensus event in Phase One emphasised the importance of users and carers being listened to by the different professionals. In the case studies, Phase Two, considered the extent to which older people and carers felt able to influence or shape their care. Findings were mixed, but where there were one or two professionals coordinating care there was a greater likelihood that the older person's 'story' and preferences would be known, shared and acted upon. Hence, for this population, co-production was an extension and development of being listened to. Consequently, decisions about place and priorities of care were jointly made, and as importantly, failures in provision were acknowledged and discussed (and ideally, but not always, redressed).

The extent to which this was achieved within the different models was linked to the relational continuity between the older person and the services received. It could, therefore, be harder to achieve in the integrated IPW models as there are fewer opportunities for a Service user to influence the services even when the goals of care were more explicit and they were linked to specific goals of recovery.

8.4 Varieties of Structural Models and their impact

8.4.1 IPW across health and social care

This was a study of IPW across health and social care, although the majority of the data collected were concerned with how different health care services worked together across primary and secondary care.

Social work and social care involvement across all the models was time limited and intermittent, occurring if it did, at key moments of assessment and crisis. We found very few accounts or opportunities for joint working on the patient or user behalf. There were more examples of services being withdrawn or not provided. As a service, social care assessment and care planning were time limited and did not maintain high levels or ongoing links with older people, carers or the care workers that supported them. This pattern of case management has been documented elsewhere (180).

The case study phase documented as many examples of intra-professional working (i.e. therapist to therapist, nurse to nurse, GP to consultant) as interprofessional. Considerable effort was put into identifying the contribution of local authority funded social care services, social care provided by the independent sector and the emerging impact of personalisation on the organisation and delivery of IPW. However, in the literature, the survey, and the case studies, we found these social care services were often peripheral to the accounts of older people or their outcomes, even when social workers (as commissioners of care and initial assessors) were integrated or co-located with health care services. Home care workers were important to older people and carers but few healthcare professionals visiting individuals exploited this continuity of input or worked with the home care workers to support them or to achieve particular goals.

8.4.2 Networks of care

The study has focused on three models of IPW. Their organisation and delivery echoed Leutz's (20) organisational models. Each of the models overlapped with other services or referred older people to others in a varied network of services. Social network theories help illuminate the ways in which the different IPW models worked together and more importantly from a Service user perspective, as one element within a wider landscape of statutory and non-statutory provision. There has been limited use of network theory in illuminating experience and effectiveness. Ferlie *et al*. (185) explored, at an organisational level, networks as a form of governance. Their study identified at the meso-level that the boundaries around some networks, referred to as Epistemic Communities of Practice, could be tightly drawn, excluding others. It found that at the micro-level, those taking boundary-spanning roles were important and that co-production with Service users was poorly developed (although more evident in the two case studies of networks focused on older people). Joly *et al*. (186) used network theory in a study of health and social care provision for homeless people. This highlighted the value of ties, albeit weak, between services to access resources and services for this marginalised group. Granovetter (187) observed that the strength of ties between individuals in a social network resulted from a combination of four factors: length of time, emotional intensity, intimacy (mutual confiding), and reciprocal services.

In the case study phase (Chapter 6), many of these characteristics of relational-based working were employed by older people to describe what was important to them in continuity of care. Perri 6 *et al*.'s (188) review of the social network theoretical literature suggested four forms of social networks which reflect dimensions of both social regulation and social integration of the individual:

- Isolate networks: in which the individuals experience strong internal social regulation to immediate peers but have weak social integration with the wider network.
- Hierarchy networks: in which the individuals have strong internal social regulation and strong social integration but in defined vertical structures such bureaucracies.
- Enclave networks: in which individuals have weak social regulation external to the network and dense internal social regulation that has sharply defined boundaries between the enclave and others.
- Individualism networks: in which social regulation is weak and there is little social integration.

Perri 6 *et al*. (188) pointed out that multiple types of these networks could exist with complex social organisations and in health care could be differentiated further by function e.g. learning and information, coordinated care, procurement and managed care. The models of IPW had features characteristic of Perri 6 *et al*.'s typology of networks.

The integrated model of IPW resembles an enclave network, set apart from other services and with dense social ties between key professionals and the specialist hospital team to which they were linked. They were characterised by self-sufficiency and limited engagement with primary health care. They were principally driven by specific goals and associated local policy initiatives to facilitate discharge and reduce hospital readmission.

The collaboration and case management models demonstrated characteristics of isolate networks with ties to a wider system of care but also at times to hierarchical networks, in which particular aspects of care delivery were subject to the regulation and hierarchy of a bureaucracy. The case manager (in the case manager model) often acted as a bridge between services and sometimes there was more than one case manager - for example, when a social work care manager was also present. This bridging role was often taken in the collaboration model by another professional e.g. therapist, GP or district nurse. These case managers very occasionally had recognised boundary spanning functions i.e. the ability to act influentially in another network.

Granovetter (187, 189) argued that weak ties to a wide network are as important as strong ties, if they are with a broader, wider network rather than relying on internal social relationships. In our study, older people and carers had created their own ties with different professionals. Isolate networks are characterised by sparse social ties. They were often present within the models of IPW, and evidenced by links to a key professional whom patients perceived as sympathetic or knowledgeable about their care. Although this was valuable in helping people to cope, it was an arrangement that was inherently vulnerable to change in personnel or limited in how complex problems could be addressed and resolved. In contrast to the enclave network addressing time limited issues, isolate type networks addressed long term issues, principally those affecting health.

The patterns of support observable in the case study phase indicated that effective IPW was influenced by older people's connections to a wider network of care. The number of services or professionals (broadly defined) identified in this study was not extensive. This suggest that, within a stable organisation, there is considerable scope for understanding service roles and for developing working relationships that can provide intensive support where necessary, whilst ensuring that links (or ties) between services are sufficient to maintain continuity of care over time.

8.4.3 Vertical and Horizontal Integration

The accounts given by the older people (in Chapter 6) and described in the patterns of IPW (Chapter 7) suggested that, in the main, their orientation was one of ‘horizontal integration’ i.e. a view that they were supported in their wellbeing and independence by a bringing together of family carers, general practice, community health services, social care support and many other services outwith the hospital sector. Their accounts described limited and fixed roles for the hospital in the totality of their daily lives and experiences. This perspective of horizontal integration reflects UK policy debates which refers to horizontal integration as one of connectivity between health and social care services in a geographical area (186)[1]. It contrasts with the concept of ‘vertical integration’ i.e. in health care the creation of an organisation that encompasses hospital care and primary health care.

Recent initiatives have supported the piloting of 20 integrated care organisations, embracing different forms and variations of vertical and horizontal integration in England (190) . A larger number of vertical integration reorganisations have been proposed and enacted in the community health services policy(166) in which over a third of home nursing and community therapy services have been absorbed within the organisation and financial model of an acute hospital Trust (191). The impact of this type of vertical integration warrants further investigation, in particular in its contrast with the older people’s accounts in this study.

The older people’s accounts (Chapter 6) and professional accounts (Chapter 7) offer early insights into the importance of network ties that allow information about a multiplicity of service providers beyond statutory providers. This is a service landscape that is set to change with current policy initiatives for mixed economies of providers of health care (191) and the commitment to personal budgets in the form of direct payments for publicly funded social care (14, 167). As the multiplicity of providers increases, the existence of relational ties, weak and strong, in networks may take on new significance in responding to the needs of frail older people. Managers and commissioners of services will need to take account

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[1] It should be noted this contrasts with the US health care policy debates where the term horizontal integration refers to mergers of hospitals or health companies providing the same services in a geographical area)

of this. The case studies described in chapter 6 were set in different parts of the country where the documents and professional participants described repeated reorganisations which moved individuals from work and areas where they had established ties across networks to areas where they had to rebuild networks of ties. The impact of reorganisations in health and social care has been reported at an organisational level (190) and in care delivery (192). The extent to which commissioners and service managers in a quasi-market or even full market may privilege stability for relational gain across networks warrants further investigation.

Many of the frail older people reported the importance of home care workers to their daily lives although, as noted previously, these rarely feature in accounts of IPW. Granovetter (189) argues that the strength of ties in social networks was also influenced by social status: weak ties did not result in opportunities for social cohesion when there were significant differences in social status. Given the recognised social striations between different segments of the health and social care workforce, the potential and effect of this group of care workers to move from isolate networks to those with stronger ties warrants further investigation.

8.5 Commissioning, incentives and quality scrutiny

We found limited evidence of the use of incentives or quality scrutiny to commission or evaluate the quality of IPW for community dwelling older people. At the macro and meso levels of analysis quality scrutiny was underdeveloped. There was little differentiation between service provision for community dwelling older people and frail older people and their carers who were long term users of health and social care services. There was most clarity about the purpose, remit and desired outcomes of time limited interventions. However, the case studies demonstrated that for the older person this model of IPW could be problematic. Weaknesses identified included the looming threat of the withdrawal of services, interrupted service provision caused by other events such as illness, delegation of key tasks to less qualified practitioners and the loss of links to primary care. Case study data also suggested that practitioners would circumvent restrictions on continuing access to services in recognition of ongoing need and/or absence of alternative services.

8.6 Strengths and limitations of the research methods and process

The strength of this study is its breadth of perspective. In the review, survey and case studies we included older people living at home who ranged from those with (apparently) short term needs and who were on a trajectory to recovery, to those who needed ongoing long-term support and monitoring to maintain their health, to those who were at risk of hospitalisation and were, over time, increasingly frail. This proved valuable in two ways. It showed the heterogeneity of the older population living at home and demonstrated, within a realistic evaluation approach (193), what were the important outcomes and key features of IPW regardless of the IPW model/organisational context or Service user situation.

The study's capacity to address each of the research questions was limited by a number of considerations – practical, methodological and philosophical. Some of these have been discussed in previous chapters, but they are summarised here. In the systematic review, the models of IPW were developed iteratively and the final typology was applied post hoc to studies describing a wide range of organisational structures and processes. In keeping with the principles of realistic evaluation, we adopted an iterative approach to the development of the IPW models, but the process was to limited by the lack of a widely-accepted terminology of IPW. The low response rate to the survey of health and social care managers meant that we may have missed examples of IPW that could have been used to test the models for comprehensiveness and parsimony. The review and subsequent studies suggested that, in many respects, individual features of IPW were more important than overall models in influencing outcomes. Our findings suggest that more important comparisons may in fact be between features that could be shared by all of those models.

A related issue is that of identifying causal links between particular interventions – or elements of interventions – and outcomes. It is in the nature of complex interventions that multiple variables may interact to facilitate or suppress the mediators of change that produce observed outcomes. Inadequate descriptions of interventions, heterogeneity of outcome measures, and the lack of high quality RCTs among the papers considered in the systematic review, meant that modelling the relationships between variables and outcomes was problematic.

In Phase Two, the dataset was limited in some cases by the short-term nature of the IPW interventions; in such cases, the eligibility criterion of being expected to stay on the caseload for 12 months could not be met. Assessments and interviews were still conducted by the research team, but data on service use and practitioner views on the longer-term effectiveness of IPW in those cases were more limited. The small numbers of Service users involved meant that inferences of causality based on statistical tests would not be robust. However, the qualitative data enabled a richer account of possible linkages between inputs, contexts.

We used frailty as a user-centred, if not user-defined, construct with particular relevance to IPW. We used the Edmonton Frailty Scale, and found it of some value, but this and other instruments require further evaluation, particularly of their sensitivity to change, if they are to be employed as outcome measures. A larger study than ours would be required for such evaluation. Processes rather than outcomes were key to the older person's evaluation of IPW. This will be a worthwhile focus of further research

Although the study sites were chosen purposively to reflect a diversity of socio-demographic and other characteristics the transferability of our findings may be limited by the characteristics of the samples we used in the case studies. We depended upon practitioners to identify Service users potentially suitable for inclusion. Selection bias was therefore a possibility. In one of the sites, which served a population with substantial ethnic minorities, only one of the more than 20 Service users recruited was from an ethnic minority..

8.7 Conclusions and Recommendations

From an older person perspective, effective services were based on IPW interventions that supported continuity of care, and maintained a sense of security and links to wider systems of care and treatment at points of crisis or transition. The ability of individual professionals to both act in effective IPW ways and also to enable access to a breadth of services and support was influenced by the networks they participated in or were structured into.

Effective IPW for community-dwelling older people with complex, multiple and ongoing needs are is more likely to occur when three key features are present. These are: 1) a functioning link (or tie) to wider primary care services, 2) a system of communication and evaluation that allows review and input from the older person and family carers, and 3) the presence of a recognised key worker.

The landscape of providing organisations is set to change in England, with more diversity and a greater mixed-economy of provision. This is demonstrated by the emergence of new commissioning and scrutiny fora, Clinical Commissioning Groups and Health and Wellbeing Boards and the further extensions of publicly funded personal budgets to purchase new and existing forms of social and health care. The evidence from this study will have salience for managers, commissioners and scrutiny bodies in considering how best to provide services for older people with multiple and ongoing health and social care needs. As publicly funded social care withdraws from all but the frailest with low income this group and the larger group will require a greater focus from a publicly funded health perspective. Key issues identified in this study that require consideration are summarised below as recommendations for service delivery and further research:

Recommendations for Commissioners and Service Providers

- Consider mechanisms to preserve and foster relational-based service delivery, which older people identify as of high importance in effectiveness.
- Initiatives in IPW for older people, should from the outset, build on the universality and continuity provided by general practice, noting this is recognised as such by older people.
- Across health and social care develop systems for recognising key workers (by whatever name) and making these known to the older person and their family carers, particularly at points of transition or crisis in health.
- Incorporate planning and evaluation of service delivery from the older person’s perspective that links process outcomes with overall outcomes.
- Develop mechanisms for assisting professionals and service providers to build and maintain networks of relationships, however weak, that are primarily horizontal (i.e. in a geographical area across organisational boundaries) and reflect the perspective of the older person.
- Challenge whether it is the intention of commissioning decisions to foster horizontal networks or increase levels of vertical networks
- Indentify examples of co-production within existing models of service delivery that can be used to develop organisational learning and embed its principles across services.
- Centralisation of referral systems or reorganisation of health and social care staff into teams should be subject to a risk assessment of possible unintended consequences on existing networks of care and the maintenance of continuity at points of transition and crisis.
- Scrutiny and commissioning approaches should develop local level evaluative measures of process that reflect on multiple services not single services

Suggestions for Further Research

Incorporate within evaluations of service delivery effectiveness the older person's perspective that links key process outcomes with overall outcomes.

Identify the most effective ways to support networks of practice for this population, that capture both horizontal and vertical relationships

Adapt and test existing frailty measures to assess their ability to capture changes over time and use as a measure of effective IPW

Compare and test the value of primary care based registers that use combined health and social care indicators of frailty with those that focus on existing problem and disease based registers (e.g. dementia, palliative care)

Evaluate of the impact of Health and Wellbeing Boards on quality scrutiny and service provision over time for frail older people and their carers

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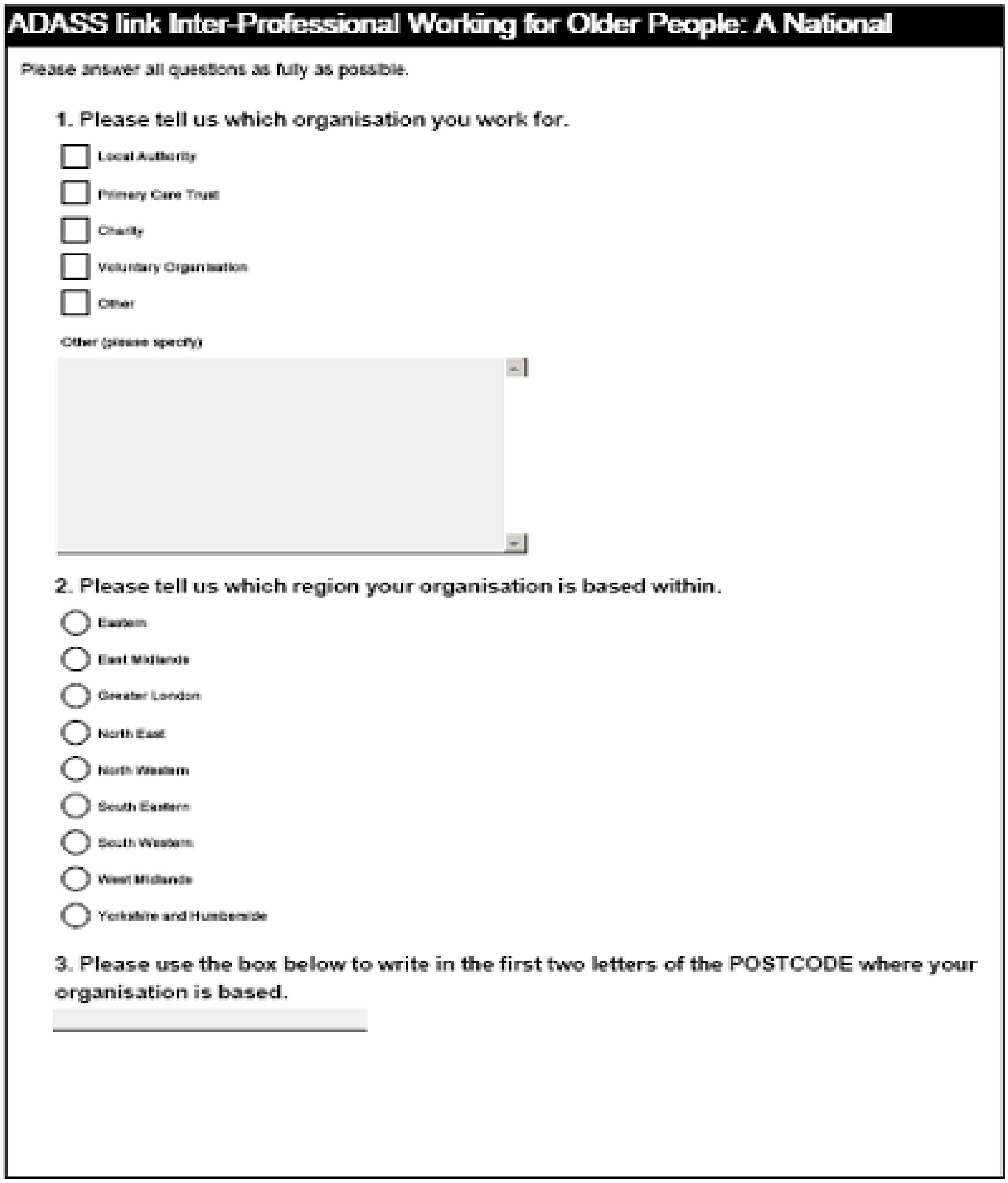
Appendix 1: On-line Survey Questions



ADASS link Inter-Professional Working for Older People: A National

Please answer all questions as fully as possible.

1. Please tell us which organisation you work for.

☐ Local Authority

☐ Primary Care Trust

☐ Charity

☐ Voluntary Organisation

☐ Other

Other (please specify)

2. Please tell us which region your organisation is based within.

○ Eastern

○ East Midlands

○ Greater London

○ North East

○ North Western

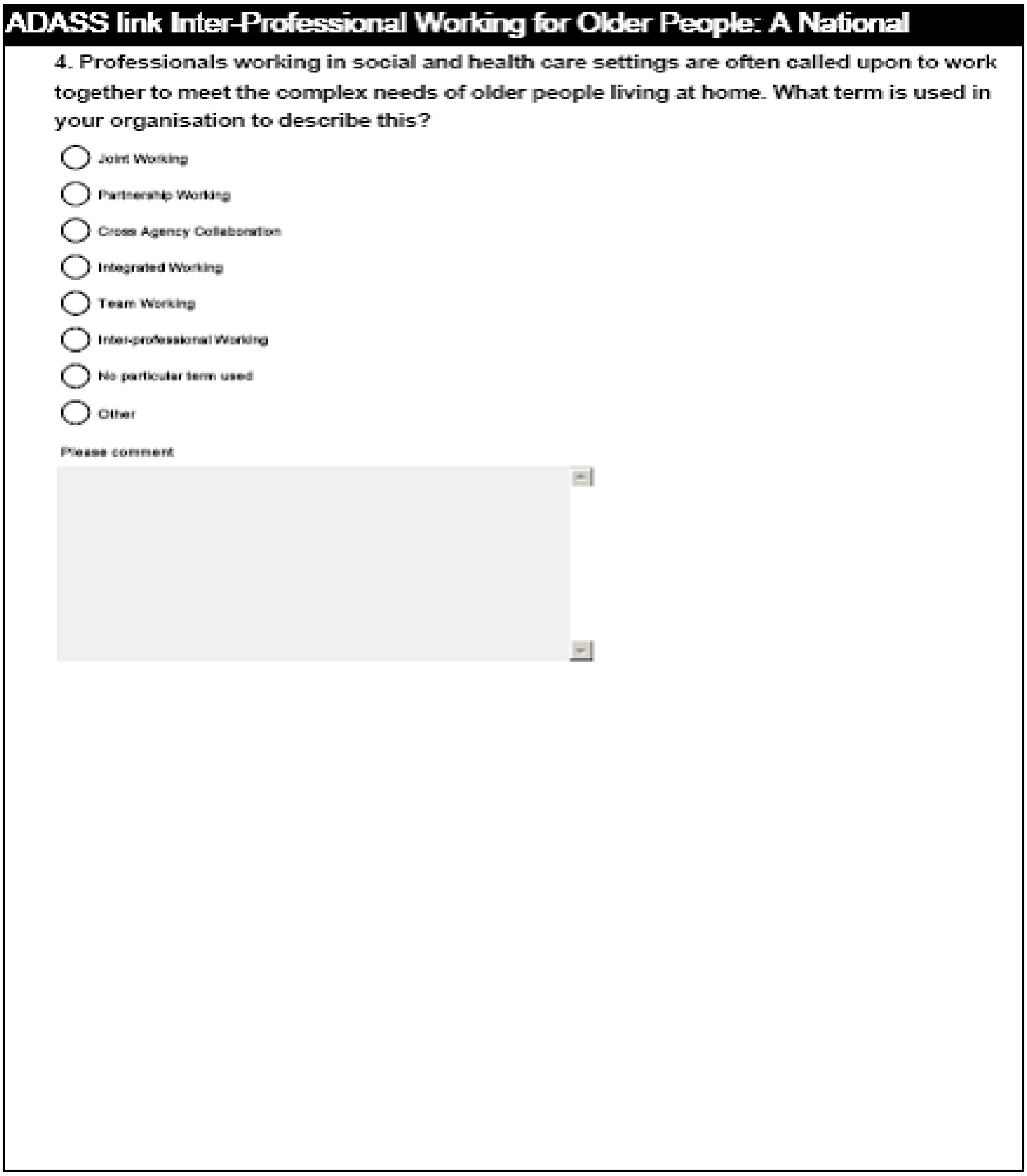
○ South Eastern

○ South Western

○ West Midlands

○ Yorkshire and Humberside

3. Please use the box below to write in the first two letters of the POSTCODE where your organisation is based.



ADASS link Inter-Professional Working for Older People: A National

4. Professionals working in social and health care settings are often called upon to work together to meet the complex needs of older people living at home. What term is used in your organisation to describe this?

○ Joint Working

○ Partnership Working

○ Cross Agency Collaboration

○ Integrated Working

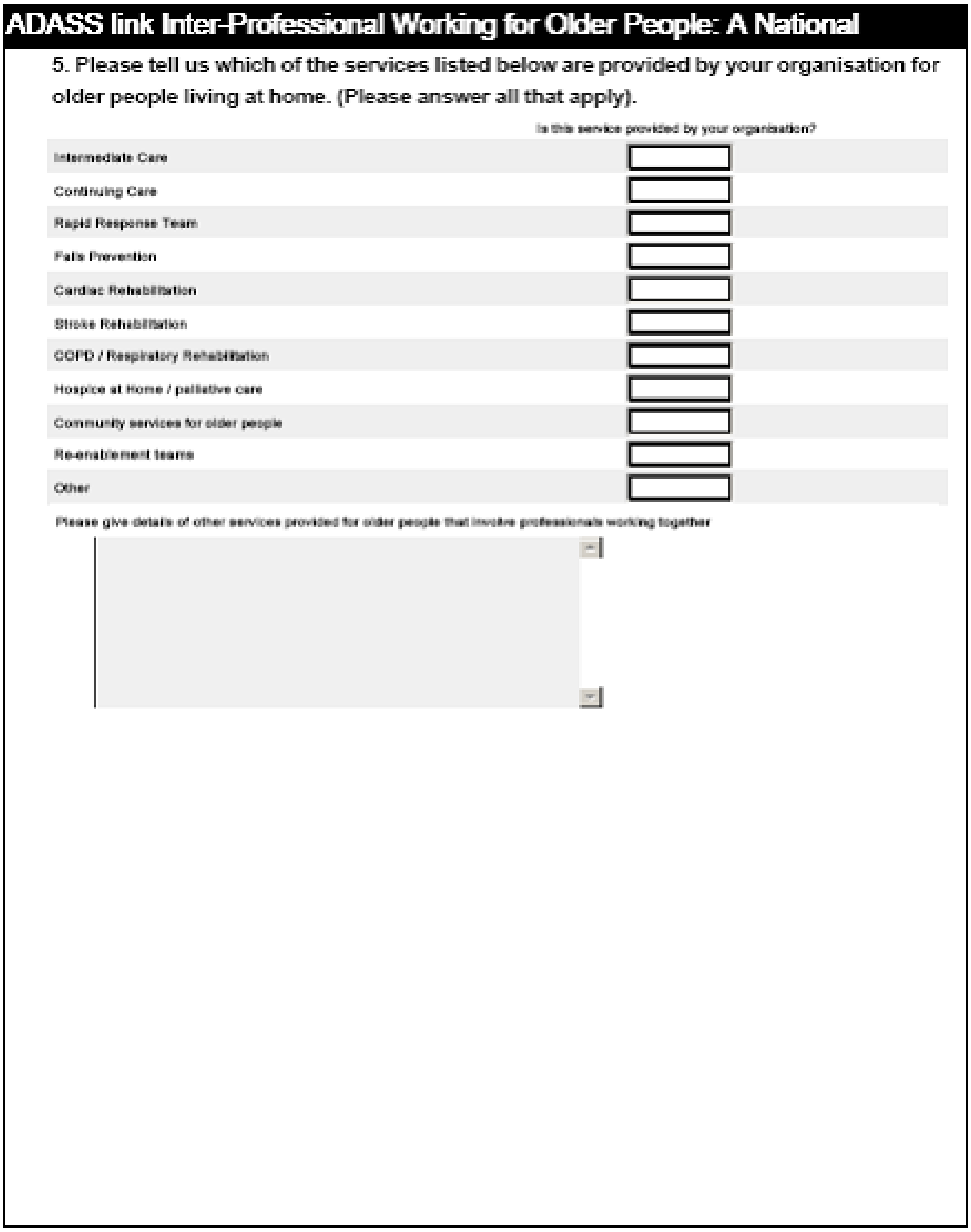
○ Team Working

○ Inter-professional Working

○ No particular term used

○ Other

Please comment

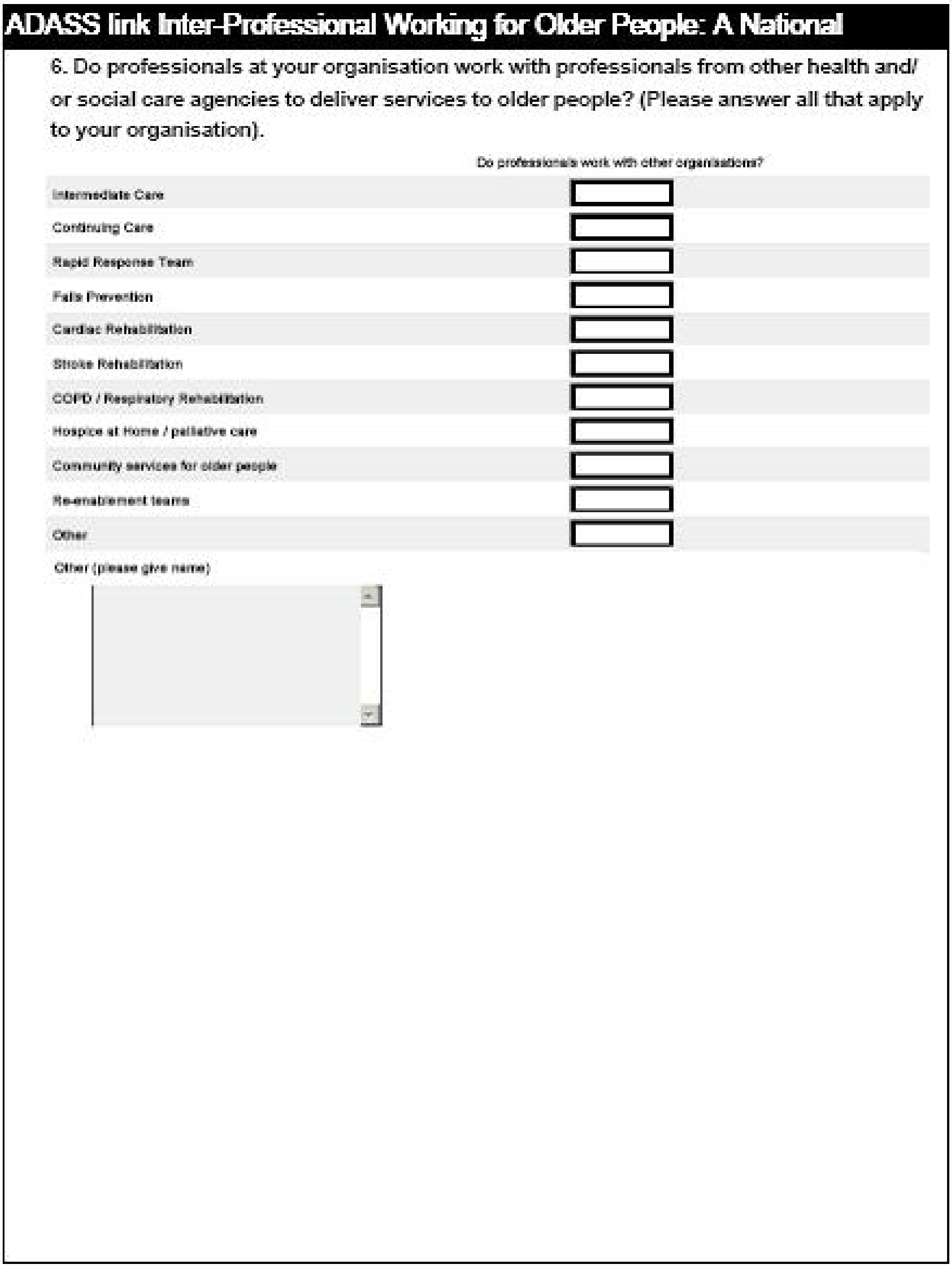


ADASS link Inter-Professional Working for Older People: A National

5. Please tell us which of the services listed below are provided by your organisation for older people living at home. (Please answer all that apply).

	Is this service provided by your organisation?
Intermediate Care	☐
Continuing Care	☐
Rapid Response Team	☐
Falls Prevention	☐
Cardiac Rehabilitation	☐
Stroke Rehabilitation	☐
COPD / Respiratory Rehabilitation	☐
Hospice at Home / palliative care	☐
Community services for older people	☐
Re-enablement teams	☐
Other	☐

Please give details of other services provided for older people that involve professionals working together

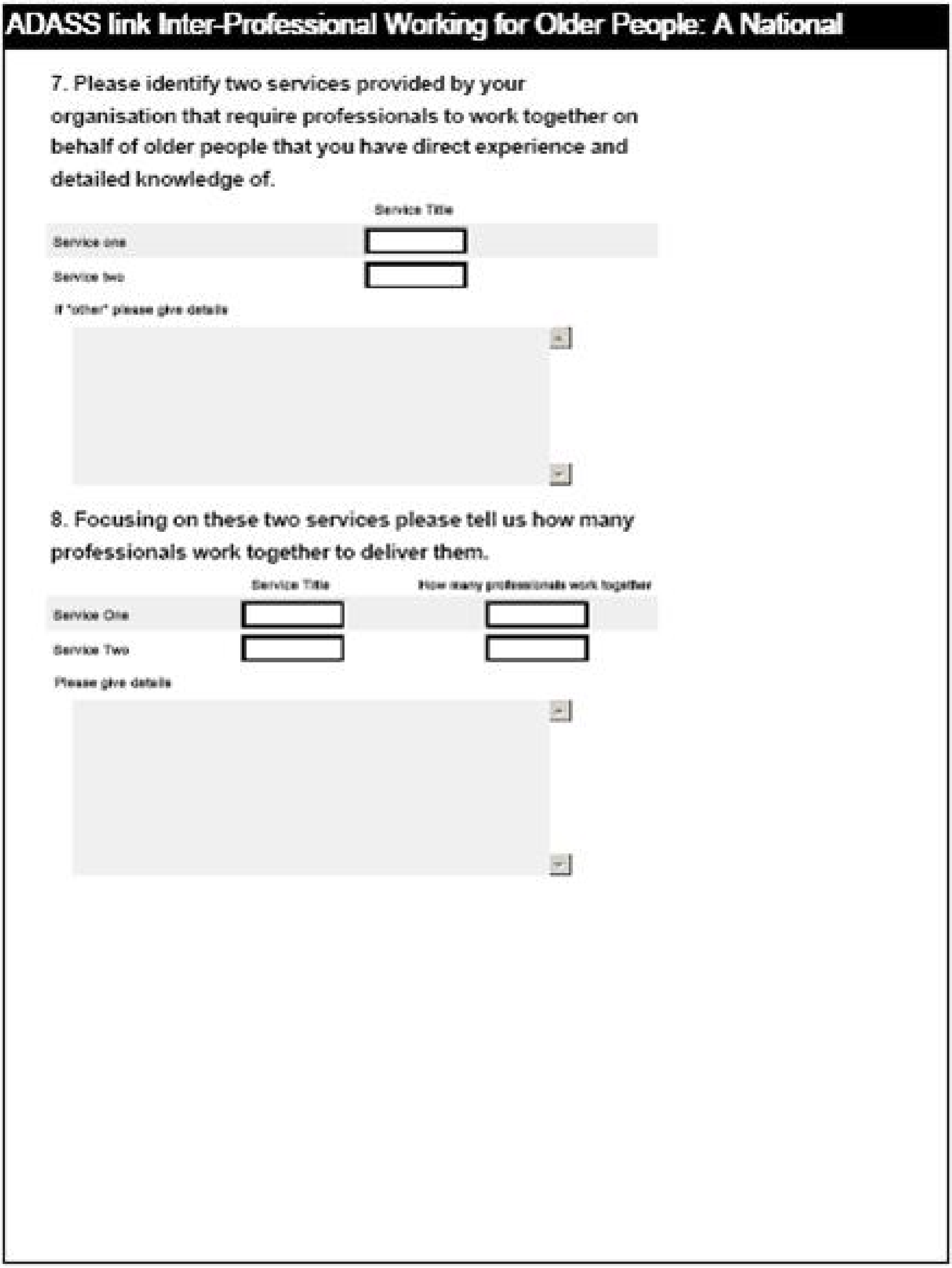


ADASS link Inter-Professional Working for Older People: A National

6. Do professionals at your organisation work with professionals from other health and/ or social care agencies to deliver services to older people? (Please answer all that apply to your organisation).

	Do professionals work with other organisations?
Intermediate Care	☐
Continuing Care	☐
Rapid Response Team	☐
Falls Prevention	☐
Cardiac Rehabilitation	☐
Stroke Rehabilitation	☐
COPD / Respiratory Rehabilitation	☐
Hospice at Home / palliative care	☐
Community services for older people	☐
Re-enablement teams	☐
Other	☐

Other (please give name)



ADASS link Inter-Professional Working for Older People: A National

7. Please identify two services provided by your organisation that require professionals to work together on behalf of older people that you have direct experience and detailed knowledge of.

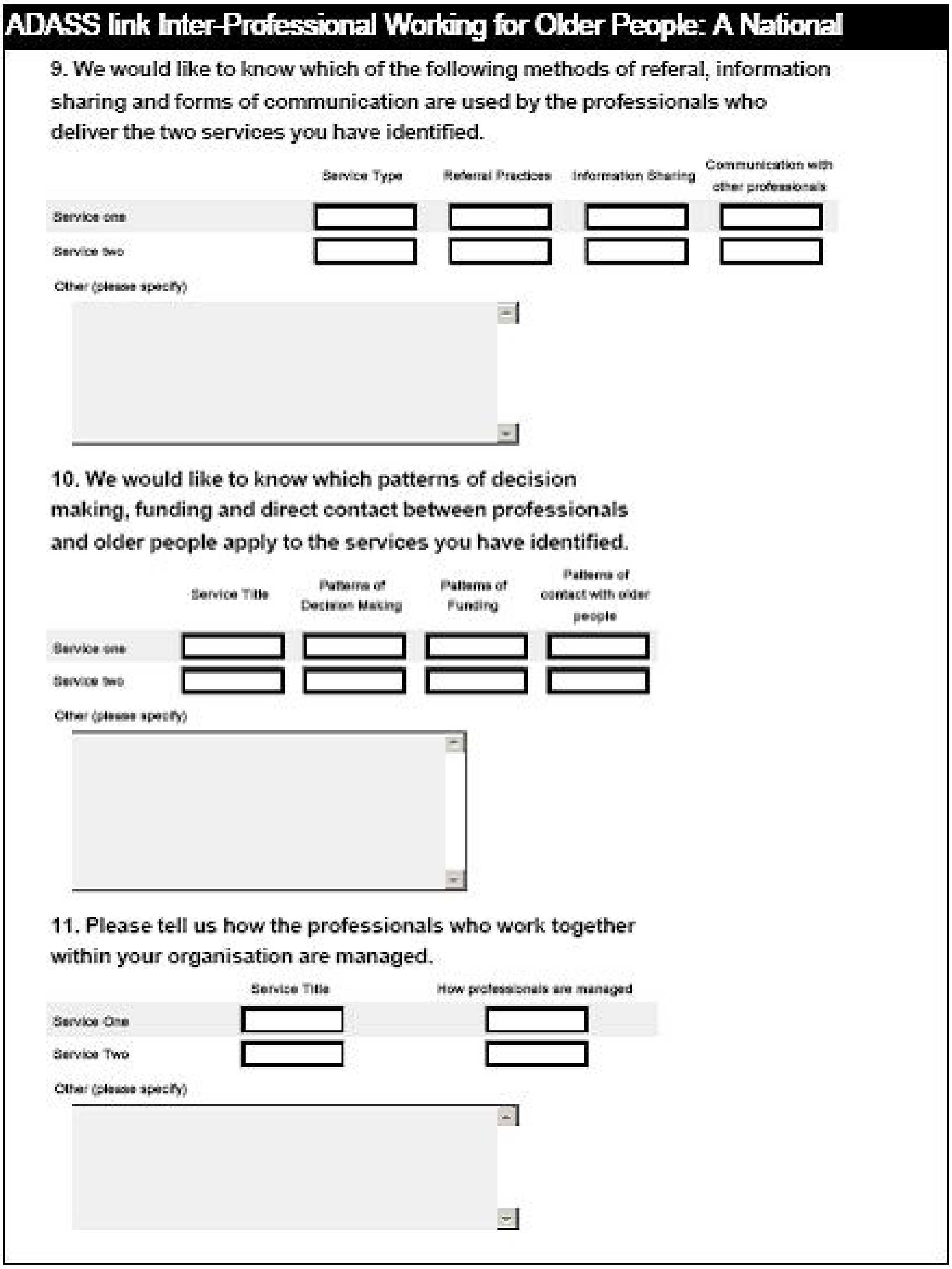
	Service Title
Service one	
Service two	

If "other" please give details

8. Focusing on these two services please tell us how many professionals work together to deliver them.

	Service Title	How many professionals work together
Service One		
Service Two		

Please give details



ADASS link Inter-Professional Working for Older People: A National

9. We would like to know which of the following methods of referal, information sharing and forms of communication are used by the professionals who deliver the two services you have identified.

	Service Type	Referral Practices	Information Sharing	Communication with other professionals
Service one				
Service two				

Other (please specify)

10. We would like to know which patterns of decision making, funding and direct contact between professionals and older people apply to the services you have identified.

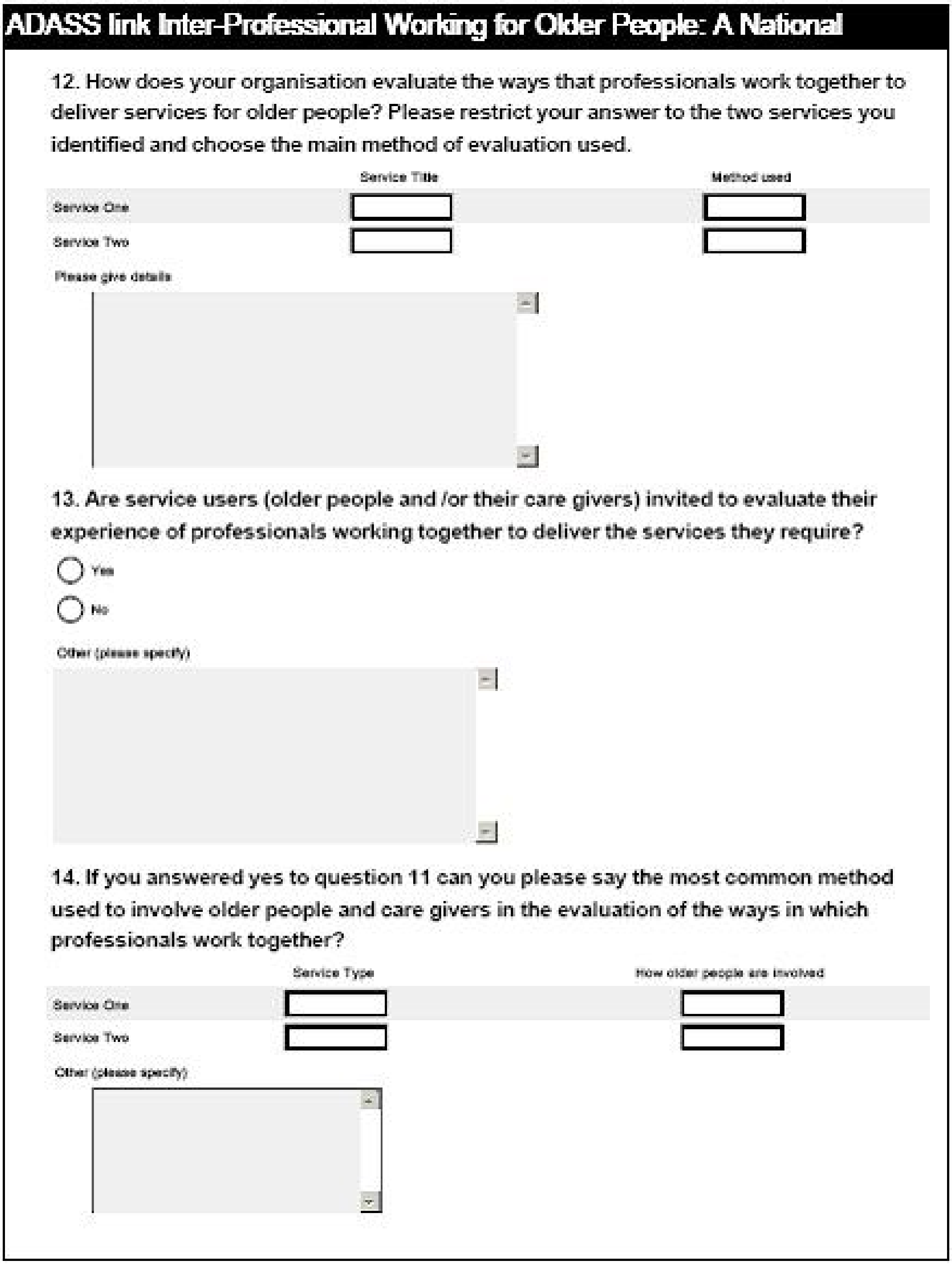
	Service Title	Patterns of Decision Making	Patterns of Funding	Patterns of contact with older people
Service one				
Service two				

Other (please specify)

11. Please tell us how the professionals who work together within your organisation are managed.

	Service Title	How professionals are managed
Service One		
Service Two		

Other (please specify)



ADASS link Inter-Professional Working for Older People: A National

12. How does your organisation evaluate the ways that professionals work together to deliver services for older people? Please restrict your answer to the two services you identified and choose the main method of evaluation used.

	Service Title	Method used
Service One	☐	☐
Service Two	☐	☐

Please give details

13. Are service users (older people and /or their care givers) invited to evaluate their experience of professionals working together to deliver the services they require?

○ Yes

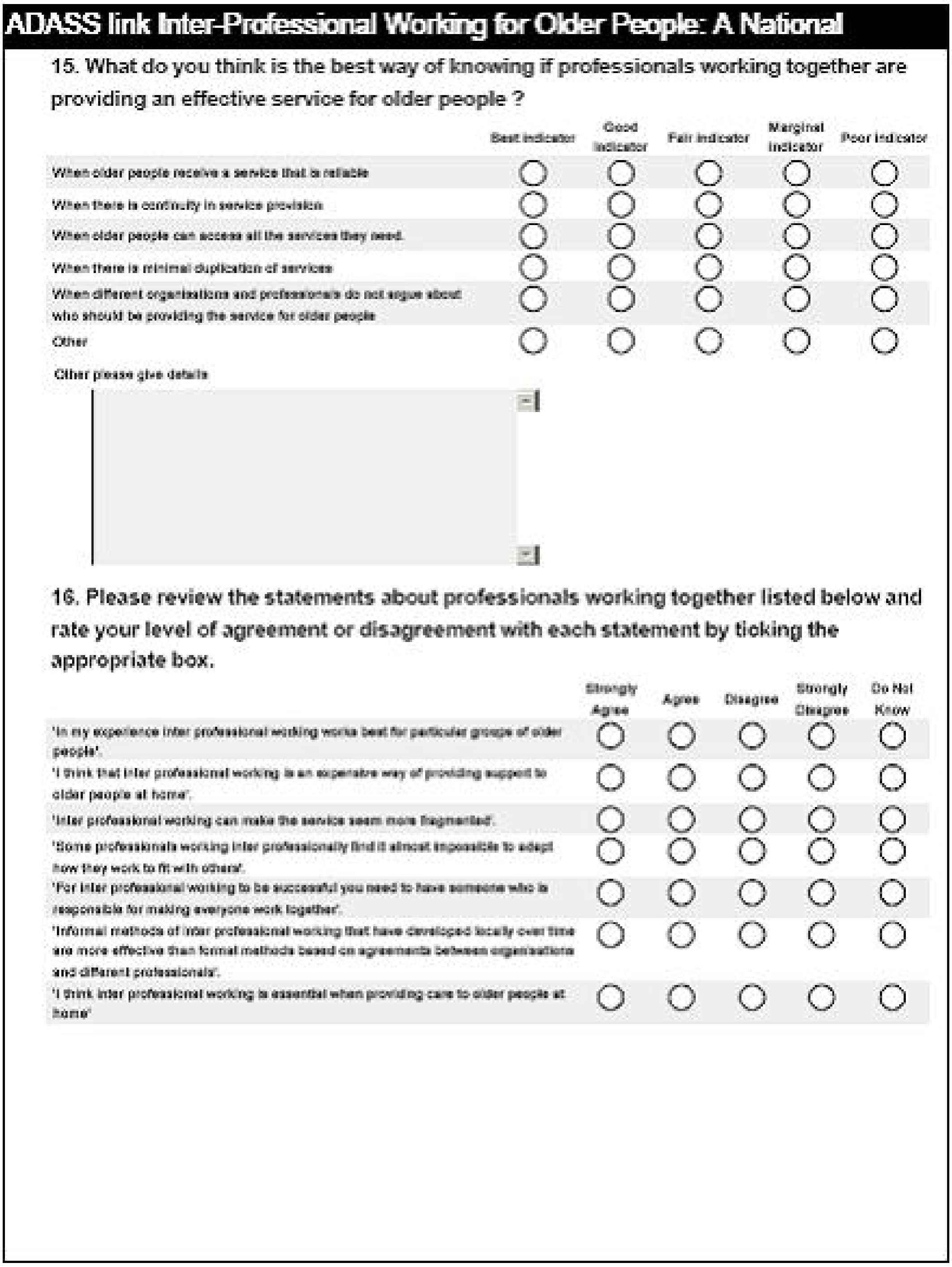
○ No

Other (please specify)

14. If you answered yes to question 11 can you please say the most common method used to involve older people and care givers in the evaluation of the ways in which professionals work together?

	Service Type	How older people are involved
Service One	☐	☐
Service Two	☐	☐

Other (please specify)



ADASS link Inter-Professional Working for Older People: A National

15. What do you think is the best way of knowing if professionals working together are providing an effective service for older people ?

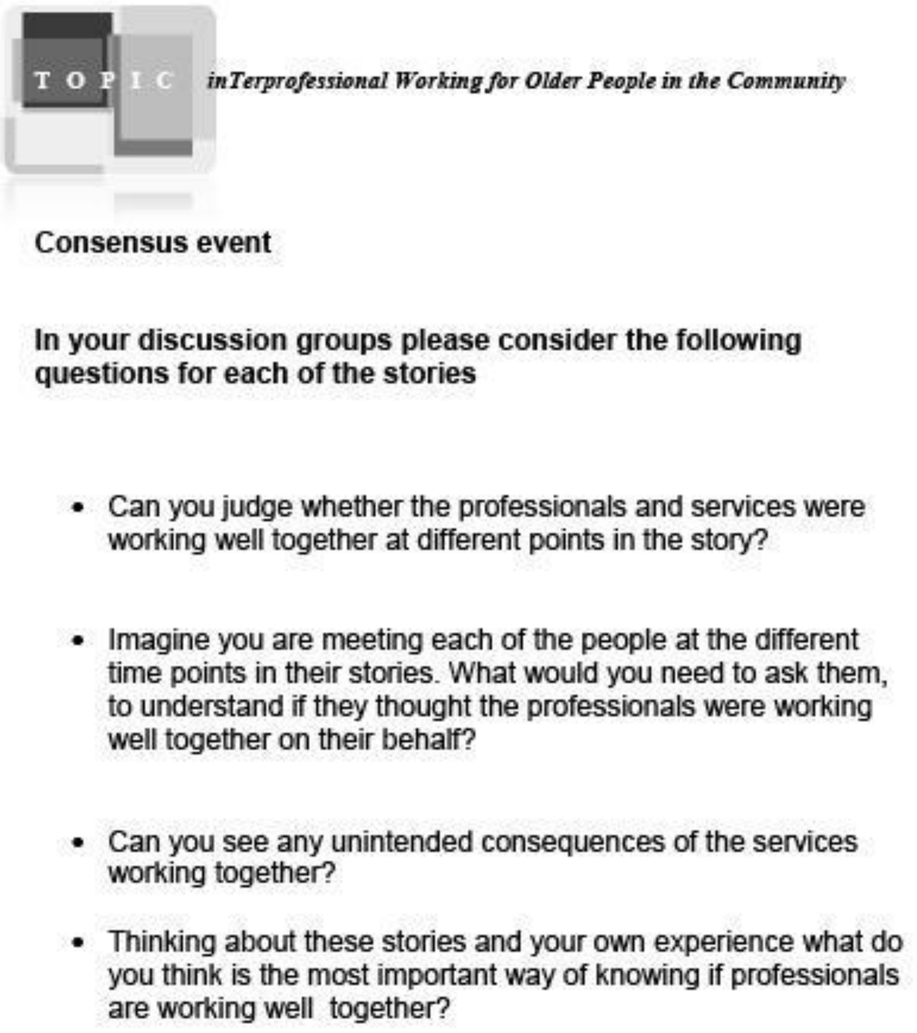
	Best indicator	Good indicator	Fair indicator	Marginal indicator	Poor indicator
When older people receive a service that is reliable	○	○	○	○	○
When there is continuity in service provision	○	○	○	○	○
When older people can access all the services they need.	○	○	○	○	○
When there is minimal duplication of services	○	○	○	○	○
When different organisations and professionals do not argue about who should be providing the service for older people	○	○	○	○	○
Other	○	○	○	○	○

Other please give details

16. Please review the statements about professionals working together listed below and rate your level of agreement or disagreement with each statement by ticking the appropriate box.

	Strongly Agree	Agree	Disagree	Strongly Disagree	Do Not Know
'In my experience inter professional working works best for particular groups of older people'.	○	○	○	○	○
'I think that inter professional working is an expensive way of providing support to older people at home'.	○	○	○	○	○
'Inter professional working can make the service seem more fragmented'.	○	○	○	○	○
'Some professionals working inter professionally find it almost impossible to adapt how they work to fit with others'.	○	○	○	○	○
'For inter professional working to be successful you need to have someone who is responsible for making everyone work together'.	○	○	○	○	○
'Informal methods of inter professional working that have developed locally over time are more effective than formal methods based on agreements between organisations and different professionals'.	○	○	○	○	○
'I think inter professional working is essential when providing care to older people at home'	○	○	○	○	○

Appendix 2: Consensus Event Questions



T O P I C *inTerprofessional Working for Older People in the Community*

Consensus event

In your discussion groups please consider the following questions for each of the stories

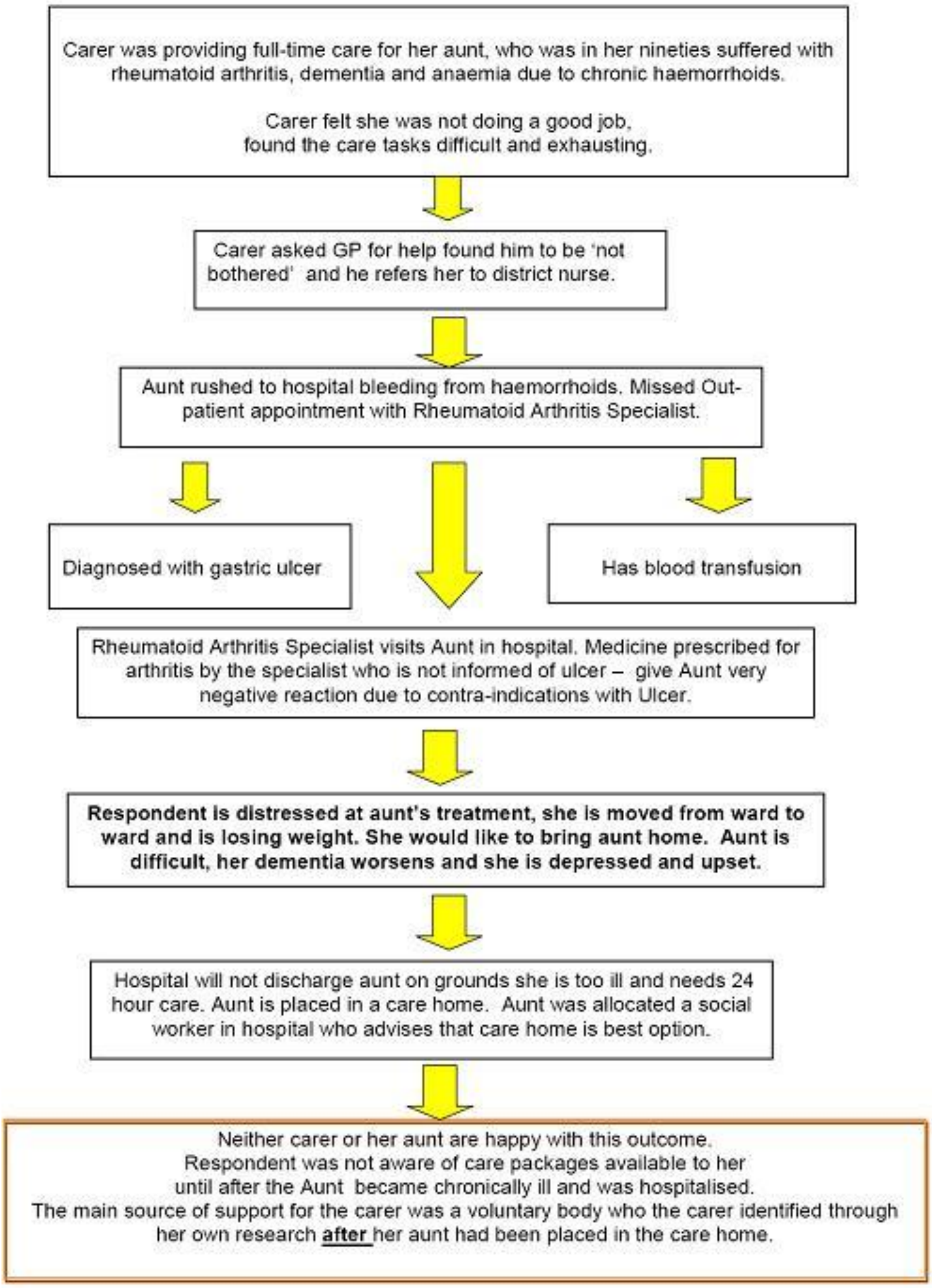
- Can you judge whether the professionals and services were working well together at different points in the story?

- Imagine you are meeting each of the people at the different time points in their stories. What would you need to ask them, to understand if they thought the professionals were working well together on their behalf?

- Can you see any unintended consequences of the services working together?
- Thinking about these stories and your own experience what do you think is the most important way of knowing if professionals are working well together?

Appendix 3: Consensus Event Vignettes

Case 1 Journey through services into care home



Carer was providing full-time care for her aunt, who was in her nineties suffered with rheumatoid arthritis, dementia and anaemia due to chronic haemorrhoids.

Carer felt she was not doing a good job, found the care tasks difficult and exhausting.

Carer asked GP for help found him to be 'not bothered' and he refers her to district nurse.

Aunt rushed to hospital bleeding from haemorrhoids. Missed Out-patient appointment with Rheumatoid Arthritis Specialist.

Diagnosed with gastric ulcer

Has blood transfusion

Rheumatoid Arthritis Specialist visits Aunt in hospital. Medicine prescribed for arthritis by the specialist who is not informed of ulcer – give Aunt very negative reaction due to contra-indications with Ulcer.

Respondent is distressed at aunt's treatment, she is moved from ward to ward and is losing weight. She would like to bring aunt home. Aunt is difficult, her dementia worsens and she is depressed and upset.

Hospital will not discharge aunt on grounds she is too ill and needs 24 hour care. Aunt is placed in a care home. Aunt was allocated a social worker in hospital who advises that care home is best option.

Neither carer or her aunt are happy with this outcome. Respondent was not aware of care packages available to her until after the Aunt became chronically ill and was hospitalised. The main source of support for the carer was a voluntary body who the carer identified through her own research **after** her aunt had been placed in the care home.

Case 2: **IRIS ' Story**

Iris is 80 years old and lives alone in a warden controlled flat. She moved there 6 years ago. Iris has had asthma for 30 years, but it has become a lot worse in the last few years. Iris also has heart disease and brittle bones. In 2008 she started episodes of severe breathlessness that she gets which she refers to as 'asthma attacks'. One of these resulted in a hospital admission, where the consultant diagnosed the respiratory condition – chronic obstructive pulmonary disease. She was offered lung surgery to address one part of her problems but she has refused. Iris was discharged home quite quickly with oxygen to use when she is sleeping. Deliveries of oxygen are organised through the GP practice. The consultant gave her an information leaflet which she says she didn't understand.

Iris has been in the area for a long time, so she has a lot of friends and neighbours so she always sees someone every day. Her son phones her every day and organised a Careline button for emergencies. Her mobility is limited by her breathing difficulties; she says that she can get around the flat but can only go out in a wheelchair so she has to rely on someone to take her out. She attends the local Age Concern community centre twice a week for lunch and social activities. On Fridays she uses a shopping bus organised by the council that goes to all the sheltered accommodation. She is fine when sitting but becomes breathless if she starts using her arms to do anything. She has a cleaner organised through Age Concern.

Spring 2009

Since the hospital admission Iris has had more episodes of severe breathing problems but always refuses to be admitted as she is scared of catching an infection like MRSA. Her GP always comes out to her and after the last severe episode of breathing problems and refusal to go to hospital the GP referred Iris to the community matron.

The community matron visits her once a week for about an hour and also phones her regularly to see how she is. Iris has her mobile phone number and other contact details. She has also introduced herself to the warden of the flats and left her card. When she visits Iris, she asks about her symptoms, how her health has been and does a detailed assessment, examines her chest, takes her blood pressure, oxygen saturation, peak flow and encourages her to do deep breathing exercises when she feels breathless. Iris knows the community matron checks with the GP if she thinks Iris might need a change in her medication as the community matron tells her that is what she is doing and always phones back.

The community matron arranged for hand rails, bath rails and a door intercom to be fitted.

Summer 2009

Iris says that she finds the community matron very helpful and does not want to see anyone else for her health problems apart from her GP.

If Iris is having an 'asthma attack' the community matron has advised her to breathe in through her nose and out through her mouth, but she can't do it when she is breathless. 'She says take a hard breath in, but I say don't tell me how to breath'. She usually tries to sit and calm herself down if she feels she is having an attack and opens the window to let some air in. Iris has now also started waking at night feeling so breathless it makes her very anxious and scared. Her hands have also recently started shaking. She is going to talk this over with the community matron next time she visits. She hasn't told her son as she doesn't want to worry him.

Case 3: **May and Donald's story**

The first major health problem

May is 63 and has been a carer to her husband Donald who suffered a stroke in September 2007. Donald is 69 and had been a maths teacher. The stroke left him unable to speak properly and with other forms of damage to his brain for example unable to do simple sums. He was able to walk, although he had poor coordination and needed some help with activities such as getting dressed.

Leaving hospital

May and Donald had very mixed experiences of help in planning for Donald to return home. May couldn't recall seeing a care plan.

The hospital social worker 'did absolutely nothing and never answered any phone calls and was really not very good at all'.

'After he had his stroke we waited, I think it was nearly three months before he got a Speech Therapist or Psychologist that the hospital promised we would get to help him'.

Once Donald was discharged, he was assigned a different social worker who they found very helpful, and referred them on to the Stroke Association who in turn referred them on to Crossroads (for the sitting service) and Age Concern.

New health problems develop

One of the effects of the stroke was that Donald often felt anxious. As time passed Donald became more and more anxious particular for the safety of his family members when they left the home or were out of his sight. As his anxiety worsened, Donald wouldn't allow May to leave the house out of the house, except one evening a week when the Crossroads sitting service was there. Donald became more irritated by things such as noise from the TV and May reading a book to the point where she felt like a prisoner in her own house. When Donald became irritated he wouldn't let anyone help him with things like drinks or getting dressed. May contacted the GP and Donald was referred to a psychiatric services in one area, where he attended for one session a week for six weeks before they referred him somewhere else. This second service saw him once and he was sent home with a yoga tape which he was supposed to listen to and follow in a room all by himself. May recalled that this was beyond his ability so he didn't bother with that.

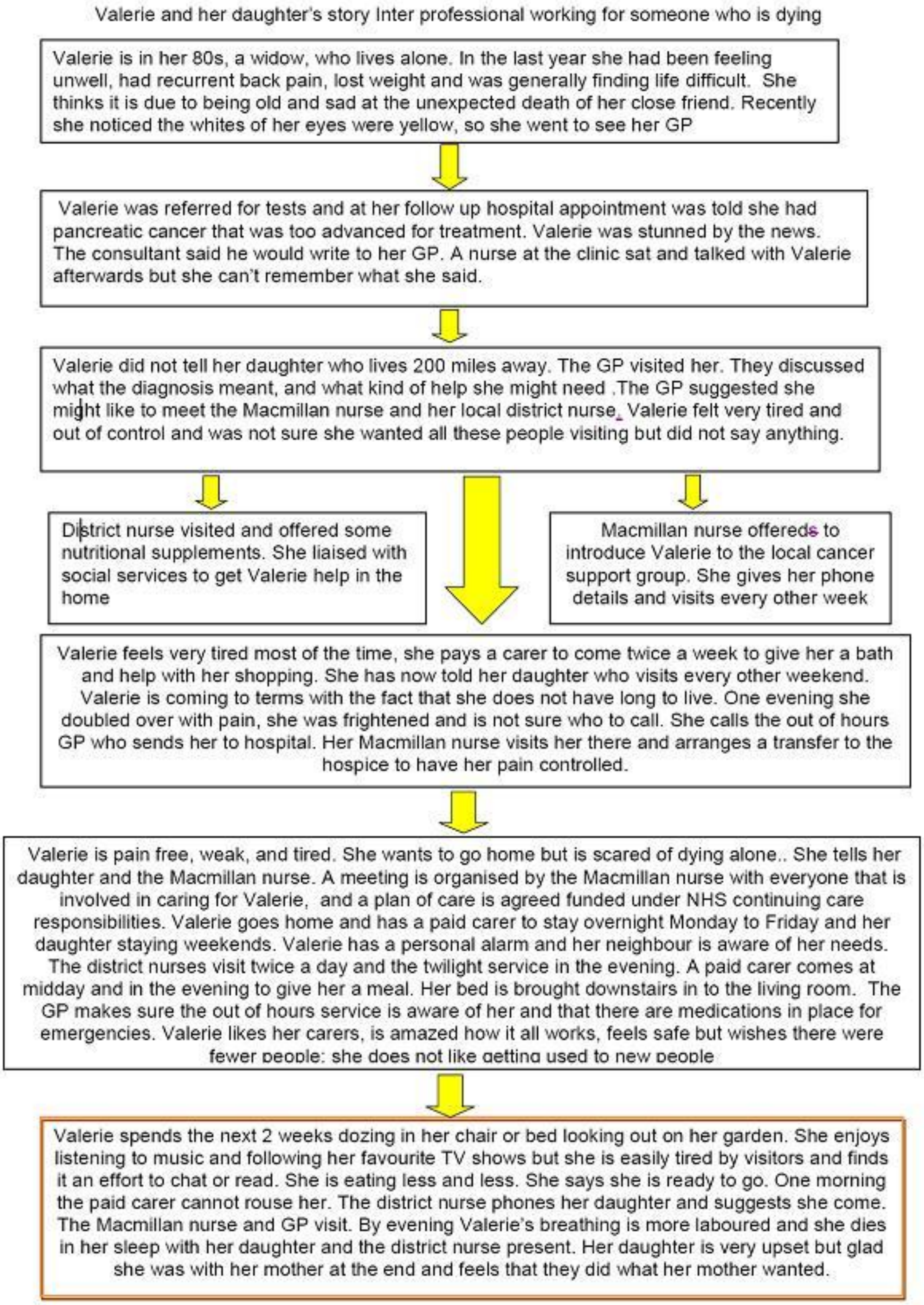
An admission to hospital

Donald was readmitted Christmas 2008 into the hospital he had previously been following the stroke. The cause this time was dehydration and a urine infection. May by this point felt she couldn't cope with his difficult behaviour and demands on her.

'They wanted me to bring him home but I refused because I said I need help, I couldn't cope any more. And because I actually refused to have him home from hospital then the Social Worker from the hospital was involved, who was very, very helpful'.

Donald was eventually discharged home with a plan for him to attend a day centre five days a week. With Donald going to the local authority day centre, May was able to cope with her caring role over the evenings and weekends. May again wasn't clear that there was a care plan although now there was a community psychiatric nurse who came to see them from time to time.

However, the arrangement only lasted for a few months until Donald 'started getting very awkward and refusing to go and of course nobody could force him to go'. May persuaded Donald to continue going to the day centre on odd days but the community psychiatric nurse stepped in to help and got Donald a place at a NHS Day Hospital for two days a week. This only lasted for a few weeks as Donald became more difficult for May to cope and she contacted her GP again. An emergency respite place was arranged in a hospital unit for older people with mental health problems through the consultant pyscho-geriatrician. Donald came home for a few days before May felt she was overwhelmed and couldn't cope. Donald was once again admitted in to Hospital and is currently waiting for a place in a care home. May feels very low and guilty that she cannot cope with her husband. as she feels to be referred to a nursing home. This has left May feeling down as she feels guilty for her husband's situation.



Valerie and her daughter's story Inter professional working for someone who is dying

Valerie is in her 80s, a widow, who lives alone. In the last year she had been feeling unwell, had recurrent back pain, lost weight and was generally finding life difficult. She thinks it is due to being old and sad at the unexpected death of her close friend. Recently she noticed the whites of her eyes were yellow, so she went to see her GP

Valerie was referred for tests and at her follow up hospital appointment was told she had pancreatic cancer that was too advanced for treatment. Valerie was stunned by the news. The consultant said he would write to her GP. A nurse at the clinic sat and talked with Valerie afterwards but she can't remember what she said.

Valerie did not tell her daughter who lives 200 miles away. The GP visited her. They discussed what the diagnosis meant, and what kind of help she might need .The GP suggested she might like to meet the Macmillan nurse and her local district nurse. Valerie felt very tired and out of control and was not sure she wanted all these people visiting but did not say anything.

District nurse visited and offered some nutritional supplements. She liaised with social services to get Valerie help in the home

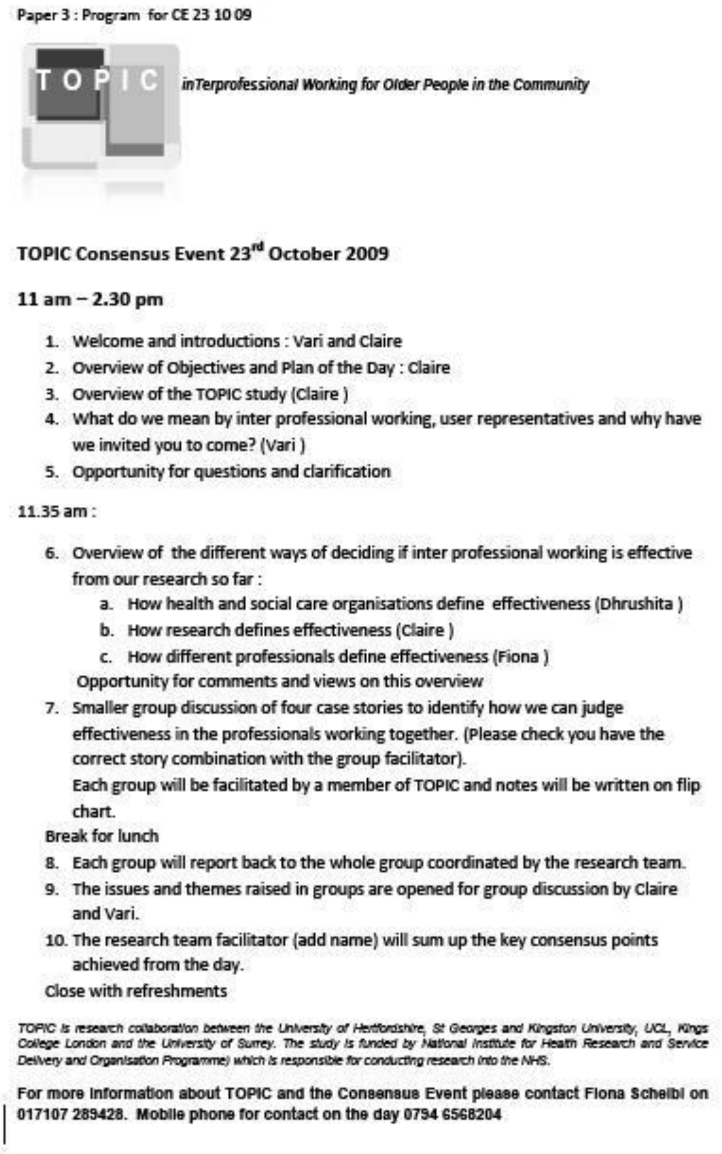
Macmillan nurse offered~~s~~ to introduce Valerie to the local cancer support group. She gives her phone details and visits every other week

Valerie feels very tired most of the time, she pays a carer to come twice a week to give her a bath and help with her shopping. She has now told her daughter who visits every other weekend. Valerie is coming to terms with the fact that she does not have long to live. One evening she doubled over with pain, she was frightened and is not sure who to call. She calls the out of hours GP who sends her to hospital. Her Macmillan nurse visits her there and arranges a transfer to the hospice to have her pain controlled.

Valerie is pain free, weak, and tired. She wants to go home but is scared of dying alone.. She tells her daughter and the Macmillan nurse. A meeting is organised by the Macmillan nurse with everyone that is involved in caring for Valerie, and a plan of care is agreed funded under NHS continuing care responsibilities. Valerie goes home and has a paid carer to stay overnight Monday to Friday and her daughter staying weekends. Valerie has a personal alarm and her neighbour is aware of her needs. The district nurses visit twice a day and the twilight service in the evening. A paid carer comes at midday and in the evening to give her a meal. Her bed is brought downstairs in to the living room. The GP makes sure the out of hours service is aware of her and that there are medications in place for emergencies. Valerie likes her carers, is amazed how it all works, feels safe but wishes there were fewer people: she does not like getting used to new people

Valerie spends the next 2 weeks dozing in her chair or bed looking out on her garden. She enjoys listening to music and following her favourite TV shows but she is easily tired by visitors and finds it an effort to chat or read. She is eating less and less. She says she is ready to go. One morning the paid carer cannot rouse her. The district nurse phones her daughter and suggests she come. The Macmillan nurse and GP visit. By evening Valerie's breathing is more laboured and she dies in her sleep with her daughter and the district nurse present. Her daughter is very upset but glad she was with her mother at the end and feels that they did what her mother wanted.

Appendix 4: Consensus Event Agenda



Paper 3 : Program for CE 23 10 09

TOPIC *inTerprofessional Working for Older People in the Community*

TOPIC Consensus Event 23rd October 2009

11 am – 2.30 pm

1. Welcome and introductions : Vari and Claire
2. Overview of Objectives and Plan of the Day : Claire
3. Overview of the TOPIC study (Claire)
4. What do we mean by inter professional working, user representatives and why have we invited you to come? (Vari)
5. Opportunity for questions and clarification

11.35 am :

6. Overview of the different ways of deciding if inter professional working is effective from our research so far :
    a. How health and social care organisations define effectiveness (Dhrushita)
    b. How research defines effectiveness (Claire)
    c. How different professionals define effectiveness (Fiona)

   Opportunity for comments and views on this overview
7. Smaller group discussion of four case stories to identify how we can judge effectiveness in the professionals working together. (Please check you have the correct story combination with the group facilitator).
   Each group will be facilitated by a member of TOPIC and notes will be written on flip chart.

Break for lunch

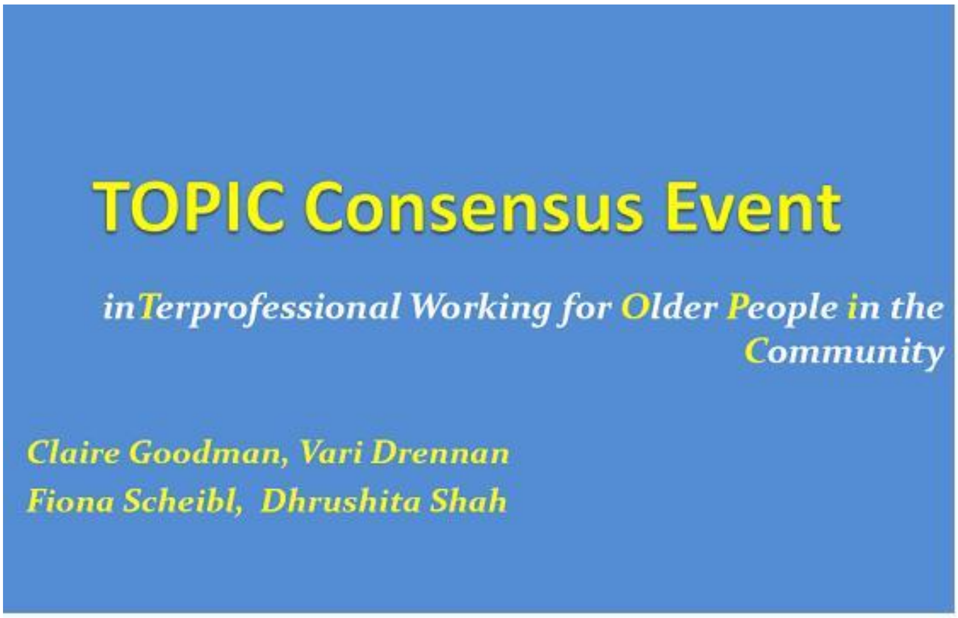
8. Each group will report back to the whole group coordinated by the research team.
9. The issues and themes raised in groups are opened for group discussion by Claire and Vari.
10. The research team facilitator (add name) will sum up the key consensus points achieved from the day.

Close with refreshments

TOPIC is research collaboration between the University of Hertfordshire, St Georges and Kingston University, UCL, Kings College London and the University of Surrey. The study is funded by National Institute for Health Research and Service Delivery and Organisation Programme) which is responsible for conducting research into the NHS.

For more information about TOPIC and the Consensus Event please contact Fiona Scheibl on 017107 289428. Mobile phone for contact on the day 0794 6568204

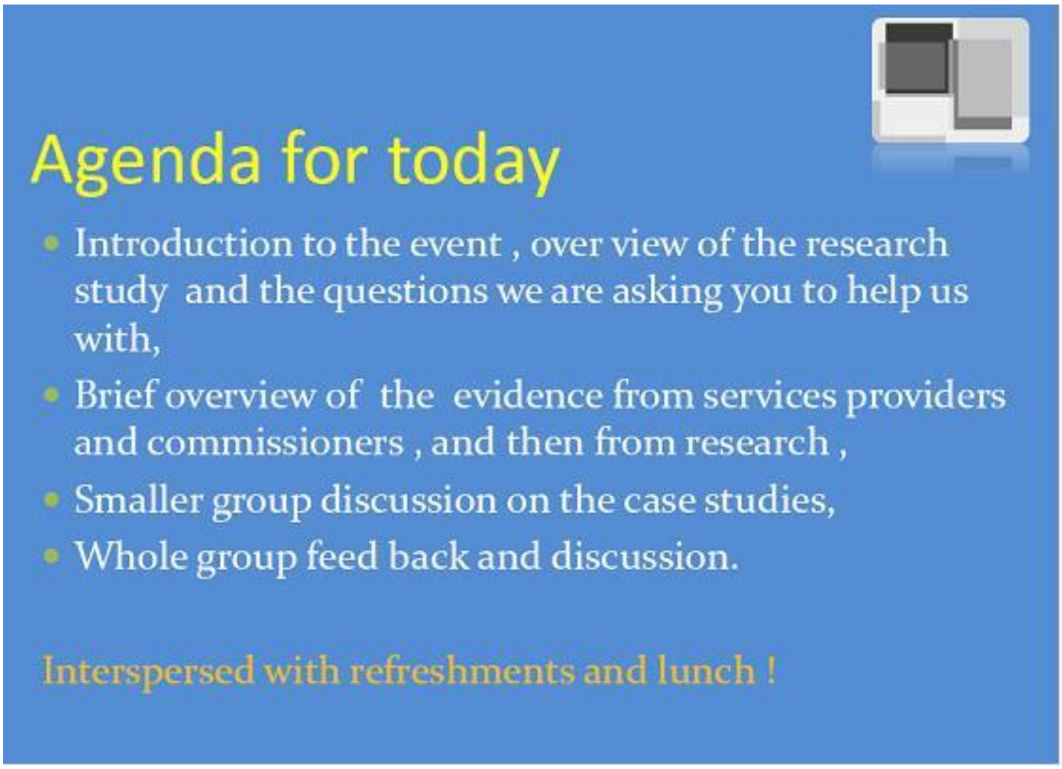
Appendix 5: Consensus Event Presentation



TOPIC Consensus Event

inTerprofessional Working for Older People in the Community

Claire Goodman, Vari Drennan
Fiona Scheibl, Dhrushita Shah



Agenda for today

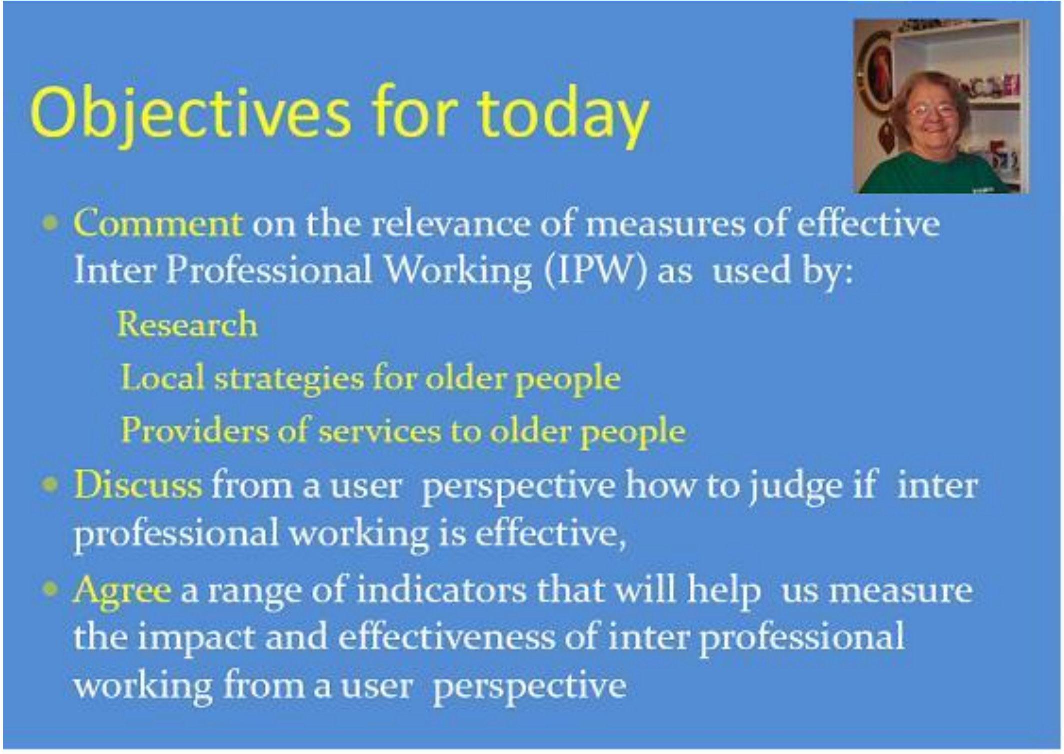
- Introduction to the event , over view of the research study and the questions we are asking you to help us with,
- Brief overview of the evidence from services providers and commissioners , and then from research ,
- Smaller group discussion on the case studies,
- Whole group feed back and discussion.

Interspersed with refreshments and lunch !

Agreeing the 'ground rules'

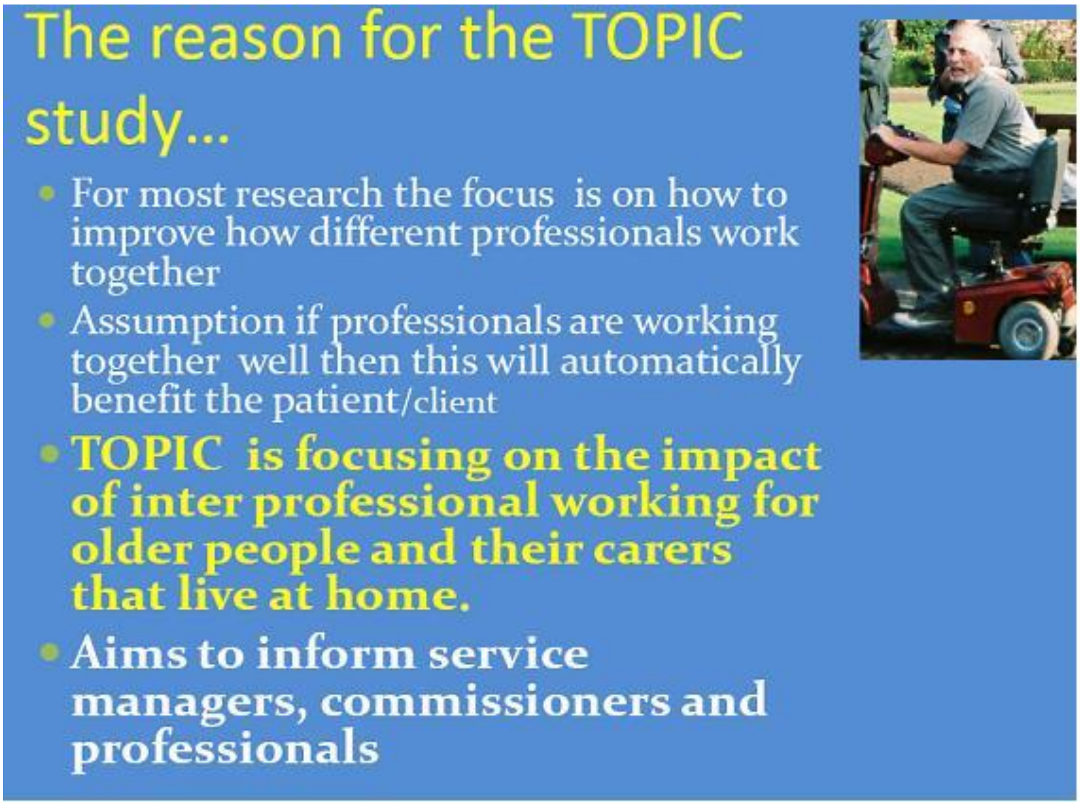
- We are using the suggested ground rules for meetings from 'Shaping Our Lives' National User Network,
- We will be writing this event up as a brief report to share with all participants and our research funders,
- We will highlight the issues discussed and mainly use the information raised in the group discussions .
- We will not be using names or any identifying information .

Is this OK with everyone ?



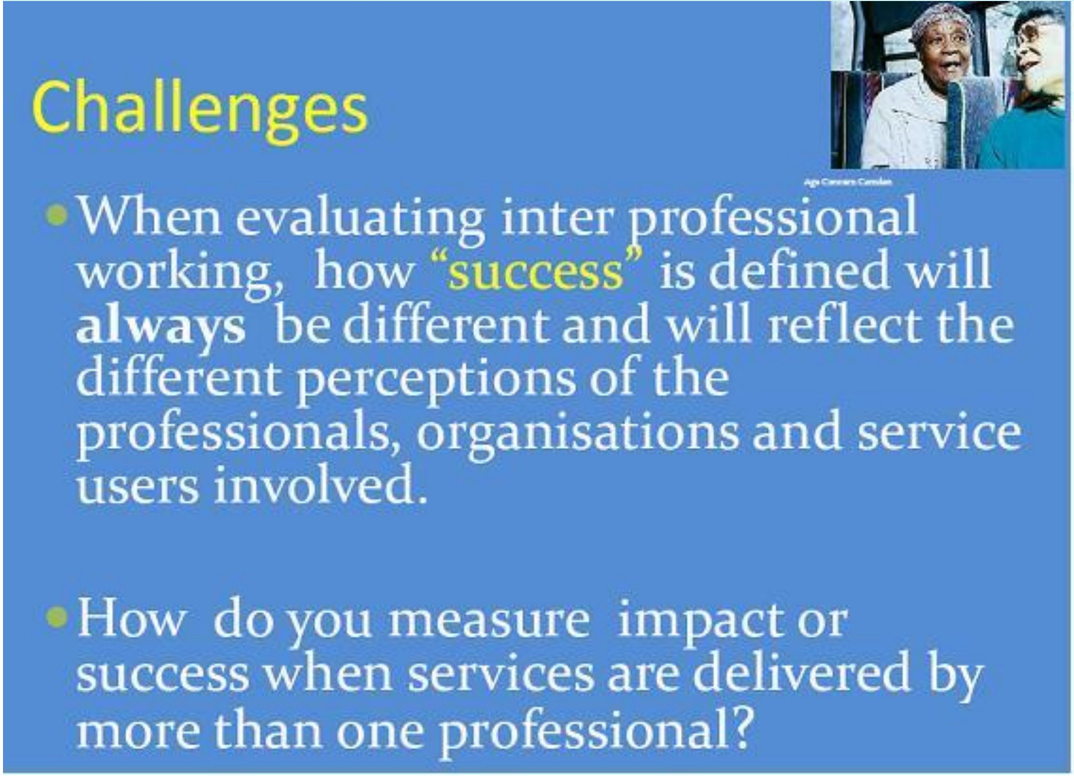
Objectives for today

- Comment on the relevance of measures of effective Inter Professional Working (IPW) as used by:
  - Research
  - Local strategies for older people
  - Providers of services to older people
- Discuss from a user perspective how to judge if inter professional working is effective,
- Agree a range of indicators that will help us measure the impact and effectiveness of inter professional working from a user perspective



The reason for the TOPIC study…

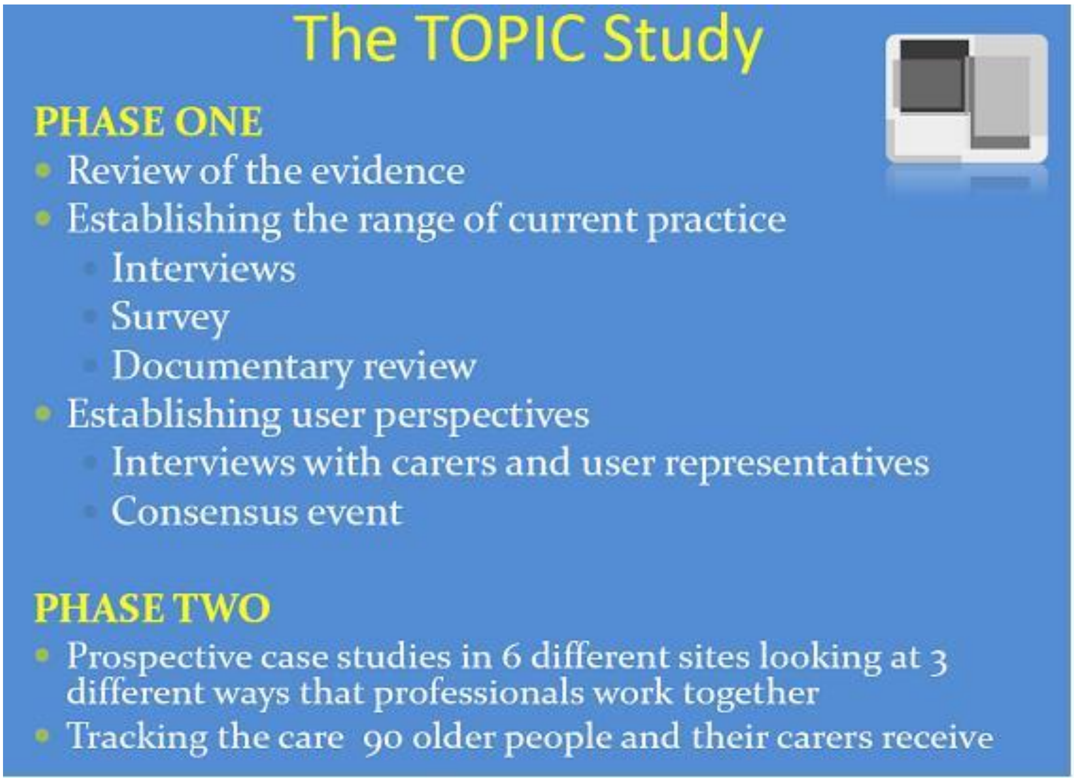
- For most research the focus is on how to improve how different professionals work together
- Assumption if professionals are working together well then this will automatically benefit the patient/client
- **TOPIC is focusing on the impact of inter professional working for older people and their carers that live at home.**
- **Aims to inform service managers, commissioners and professionals**



Challenges

Age Concern Camden

- When evaluating inter professional working, how "success" is defined will **always** be different and will reflect the different perceptions of the professionals, organisations and service users involved.
- How do you measure impact or success when services are delivered by more than one professional?



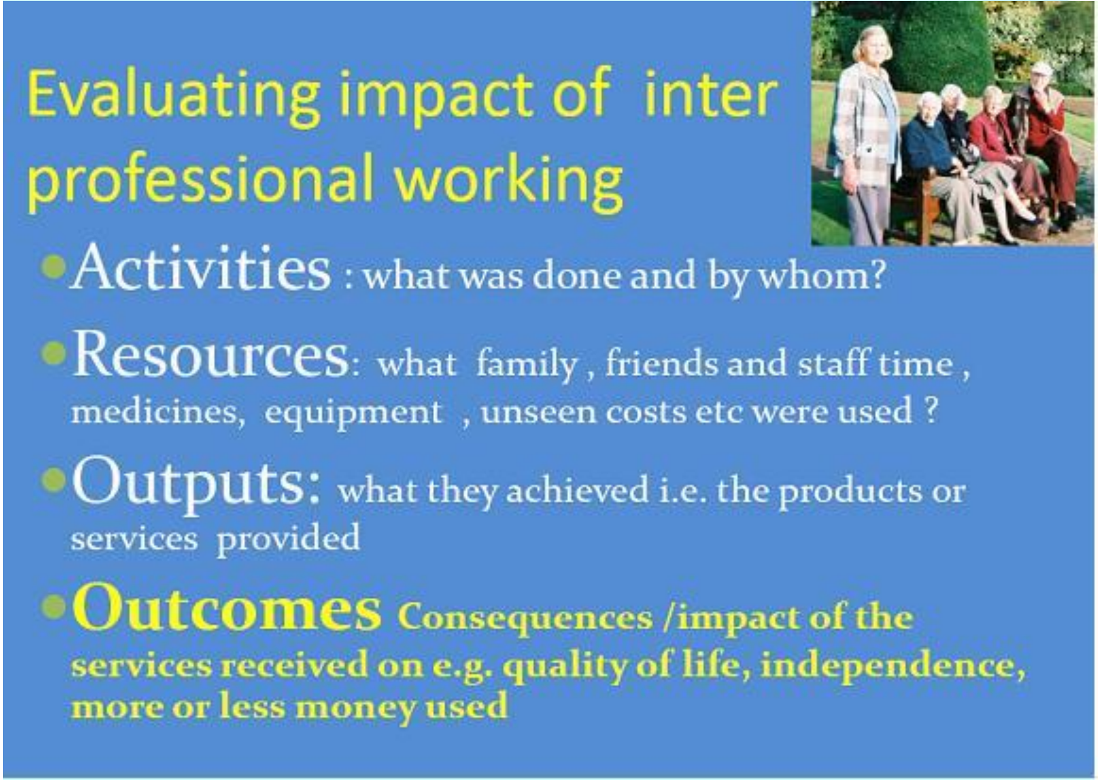
The TOPIC Study

PHASE ONE

- Review of the evidence
- Establishing the range of current practice
  - Interviews
  - Survey
  - Documentary review
- Establishing user perspectives
  - Interviews with carers and user representatives
  - Consensus event

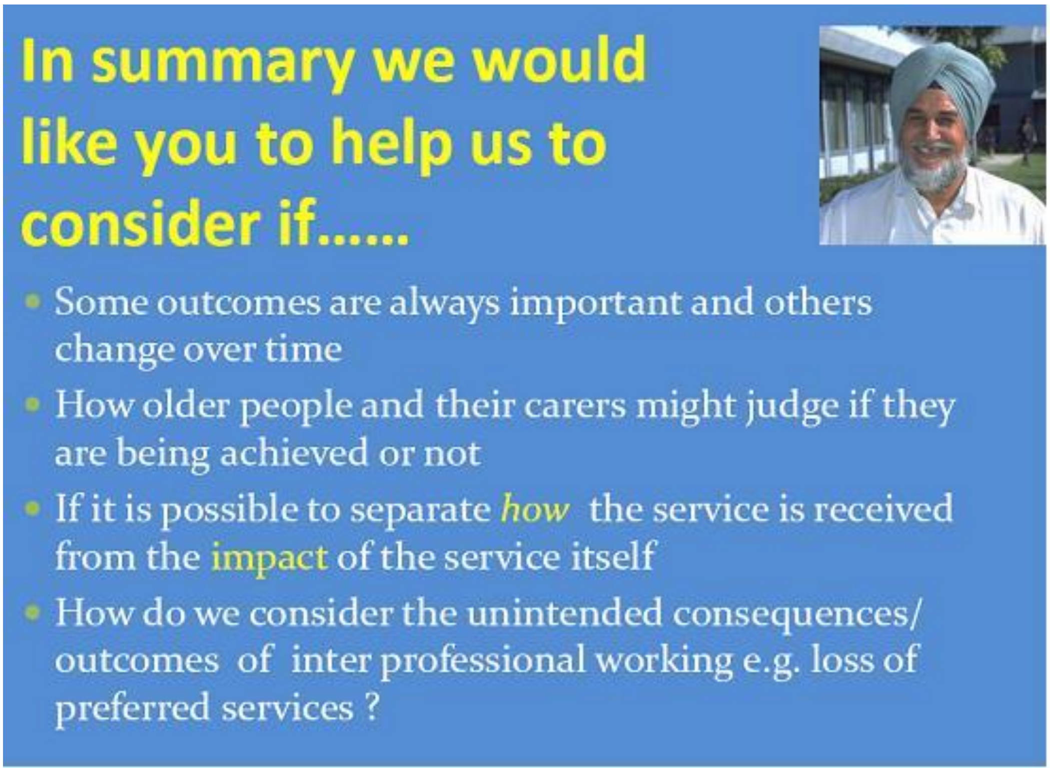
PHASE TWO

- Prospective case studies in 6 different sites looking at 3 different ways that professionals work together
- Tracking the care 90 older people and their carers receive



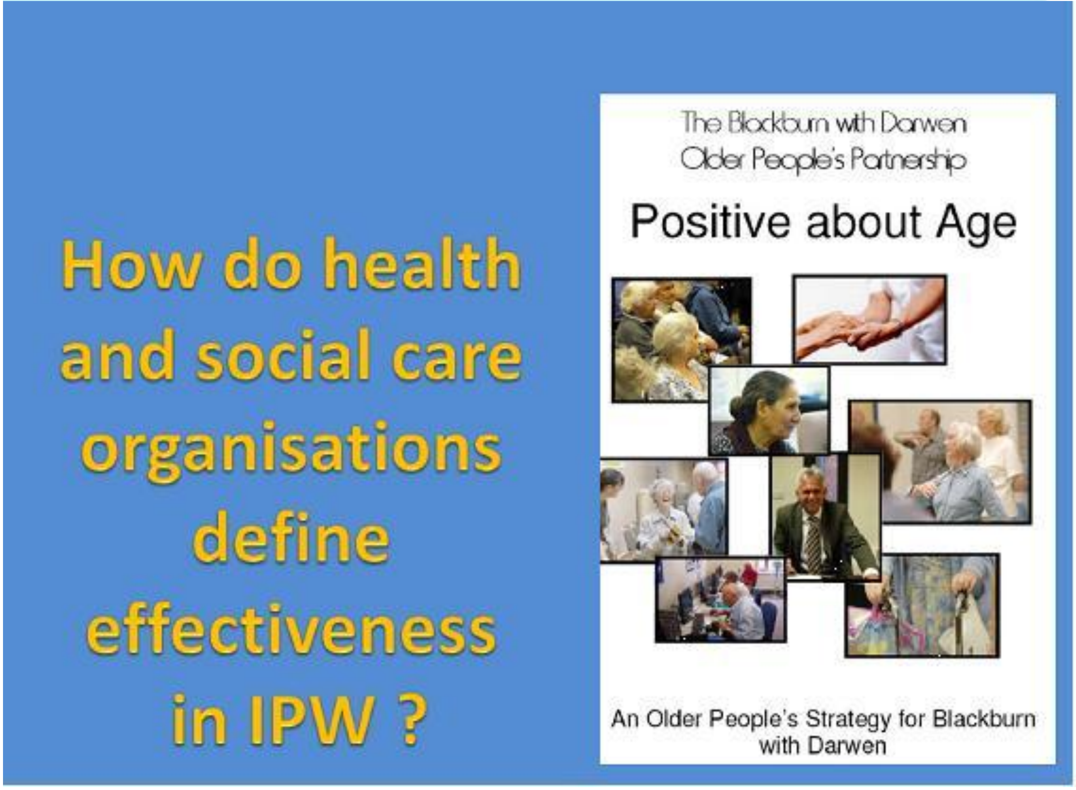
Evaluating impact of inter professional working

- **Activities** : what was done and by whom?
- **Resources**: what family , friends and staff time , medicines, equipment , unseen costs etc were used ?
- **Outputs:** what they achieved i.e. the products or services provided
- **Outcomes Consequences /impact of the services received on e.g. quality of life, independence, more or less money used**



In summary we would like you to help us to consider if……

- Some outcomes are always important and others change over time
- How older people and their carers might judge if they are being achieved or not
- If it is possible to separate *how* the service is received from the impact of the service itself
- How do we consider the unintended consequences/ outcomes of inter professional working e.g. loss of preferred services ?

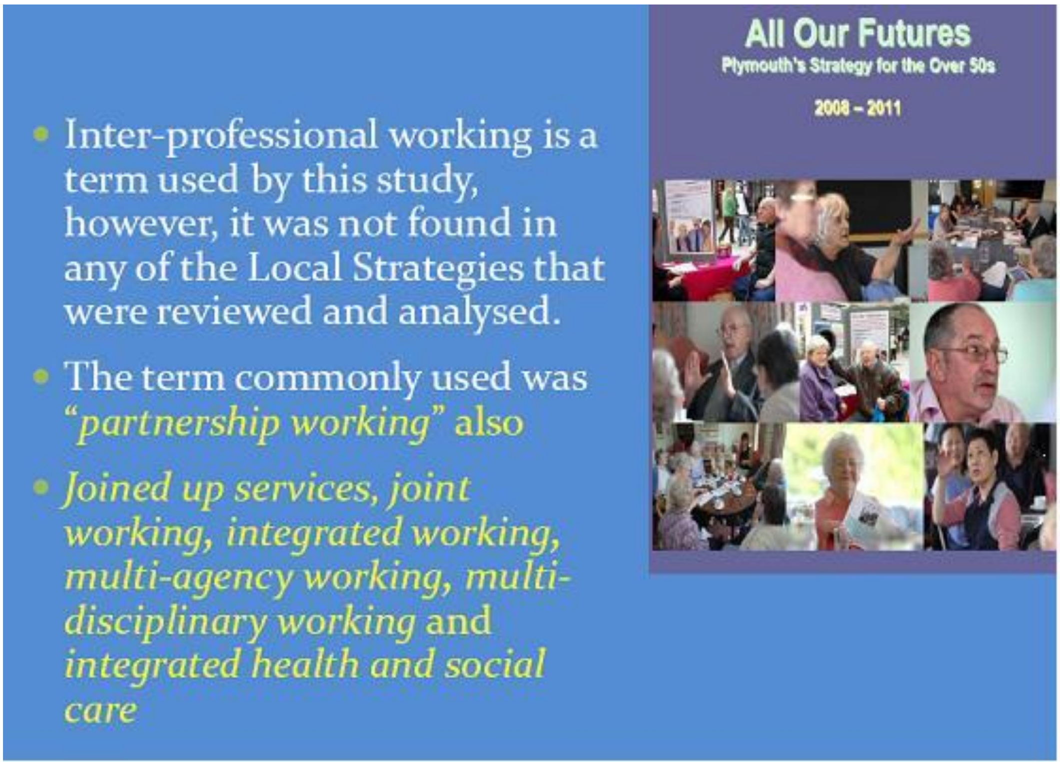


How do health and social care organisations define effectiveness in IPW ?

The Blackburn with Darwen
Older People's Partnership

Positive about Age

An Older People's Strategy for Blackburn with Darwen

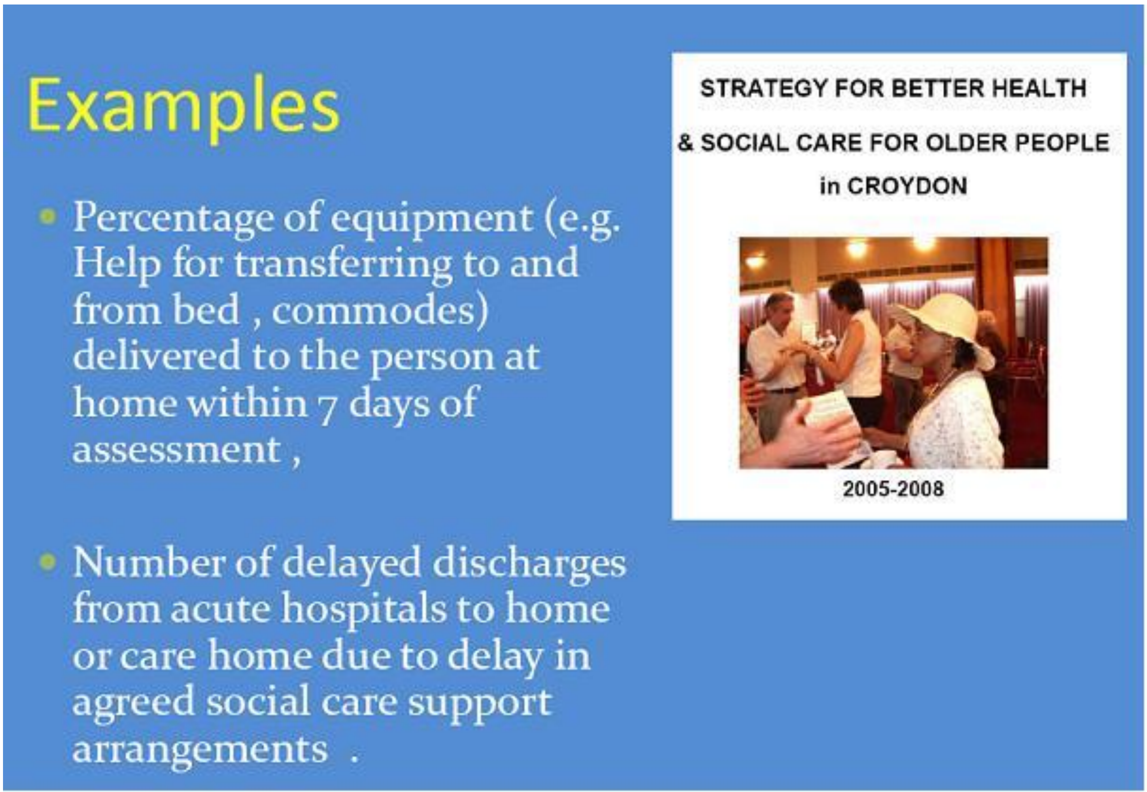


All Our Futures
Plymouth's Strategy for the Over 50s
2008 – 2011

- Inter-professional working is a term used by this study, however, it was not found in any of the Local Strategies that were reviewed and analysed.
- The term commonly used was *"partnership working"* also
- *Joined up services, joint working, integrated working, multi-agency working, multi-disciplinary working* and *integrated health and social care*

- Most strategies report involving service users in designing, planning and commissioning services.
- None of the most up-to-date documents reported using service users to monitor and/or judge effectiveness in 'joined up working'.
- Instead most, if not all, mention National Indicator Measures bench marks to judge their performance .

Rochdale Borough Local Strategic Partnership
rochdale borough strategy for older people



Examples

- Percentage of equipment (e.g. Help for transferring to and from bed , commodes) delivered to the person at home within 7 days of assessment ,
- Number of delayed discharges from acute hospitals to home or care home due to delay in agreed social care support arrangements .

STRATEGY FOR BETTER HEALTH
& SOCIAL CARE FOR OLDER PEOPLE
in CROYDON

2005-2008

Outcomes in research evidence

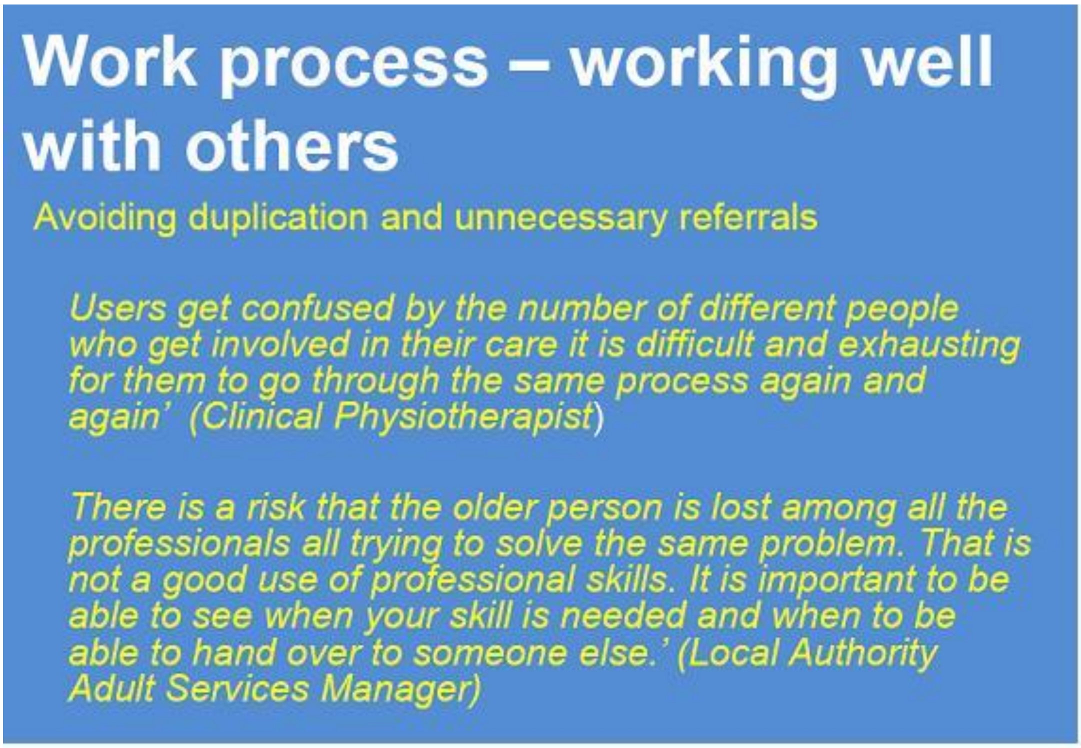
- Outcomes related to service use /costs
- Quality of life measures
- Change in health status
- Process measures

Wide range of outcome measures

- Change in health and functional status
- Change in symptoms and disease process
- Ability to live independently following intervention
- Change in number of hospitalisations
- Carer strain
- Increased knowledge about their health needs and how to locate and use services
- User satisfaction : confidence
- Resources used as a result of receiving services from different professionals
- Change in mental health
- Change in reported quality of life or sense of wellbeing
- Participation in local networks

How professionals defined effectiveness

- Interviewed professionals from across health and social care organisations including :
  - Clinical and Rehabilitation Physiotherapy,
  - Housing Services,
  - Managers in Adult Care Services
- Professionals defined effectiveness in three parts
- (1) Work Process
- (2) Quality of Life
- (3) Reducing hospitalisation and avoiding emergencies

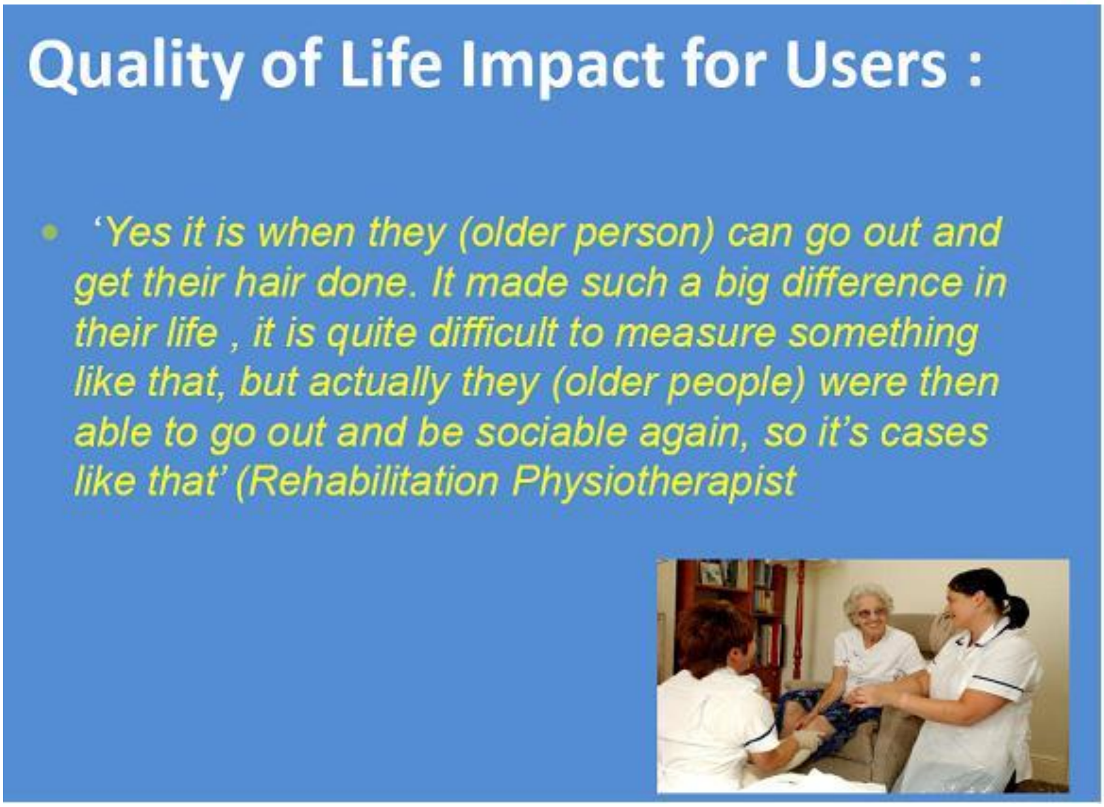


Work process – working well with others

Avoiding duplication and unnecessary referrals

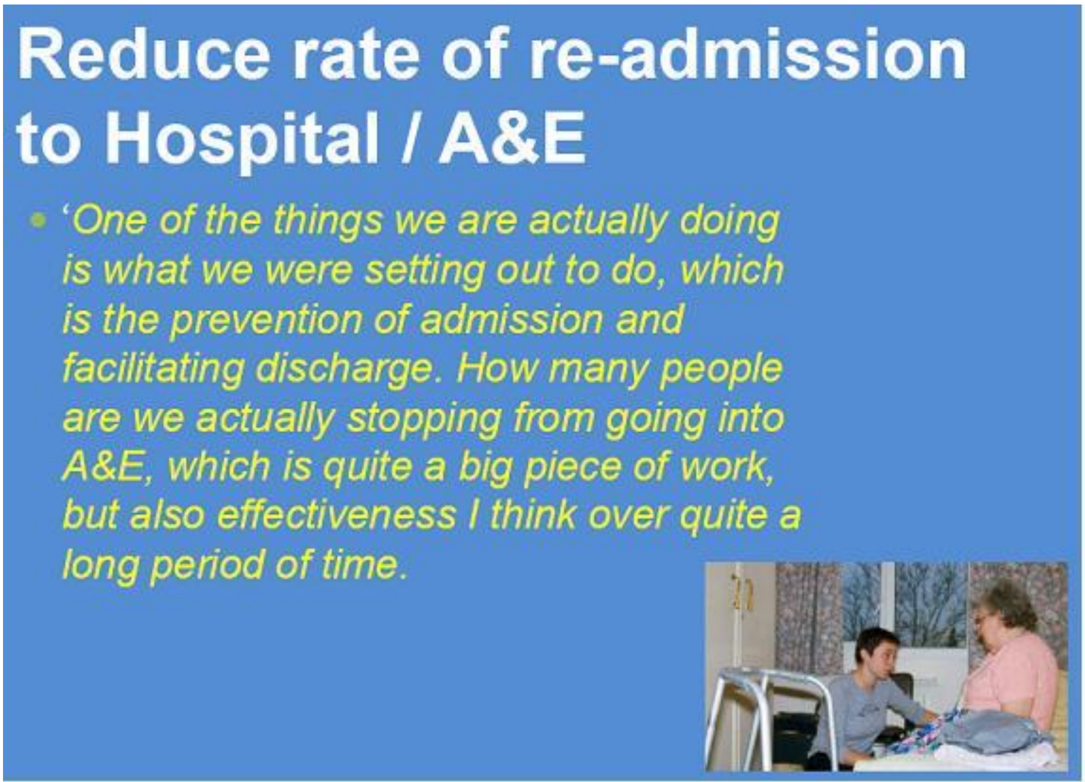
Users get confused by the number of different people who get involved in their care it is difficult and exhausting for them to go through the same process again and again' (Clinical Physiotherapist)

There is a risk that the older person is lost among all the professionals all trying to solve the same problem. That is not a good use of professional skills. It is important to be able to see when your skill is needed and when to be able to hand over to someone else.' (Local Authority Adult Services Manager)



Quality of Life Impact for Users :

- *'Yes it is when they (older person) can go out and get their hair done. It made such a big difference in their life , it is quite difficult to measure something like that, but actually they (older people) were then able to go out and be sociable again, so it's cases like that' (Rehabilitation Physiotherapist*



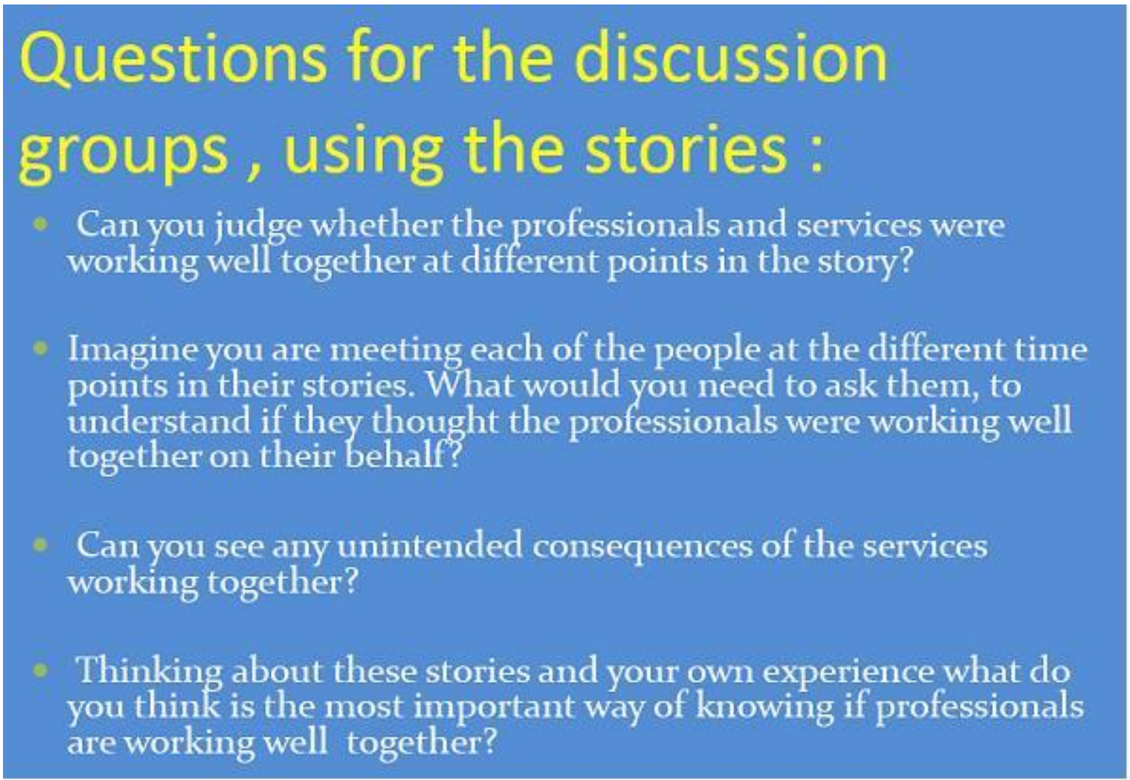
Reduce rate of re-admission to Hospital / A&E

- *'One of the things we are actually doing is what we were setting out to do, which is the prevention of admission and facilitating discharge. How many people are we actually stopping from going into A&E, which is quite a big piece of work, but also effectiveness I think over quite a long period of time.*

User representative interviews so far have identified as important …

- Reliability
- Continuity and absence of disagreements
- Access to services
- Clarity

NB There is also overlap with research , policy makers and service providers **BUT** are these equally important to the older person and carer and how do you judge if they are being achieved ?

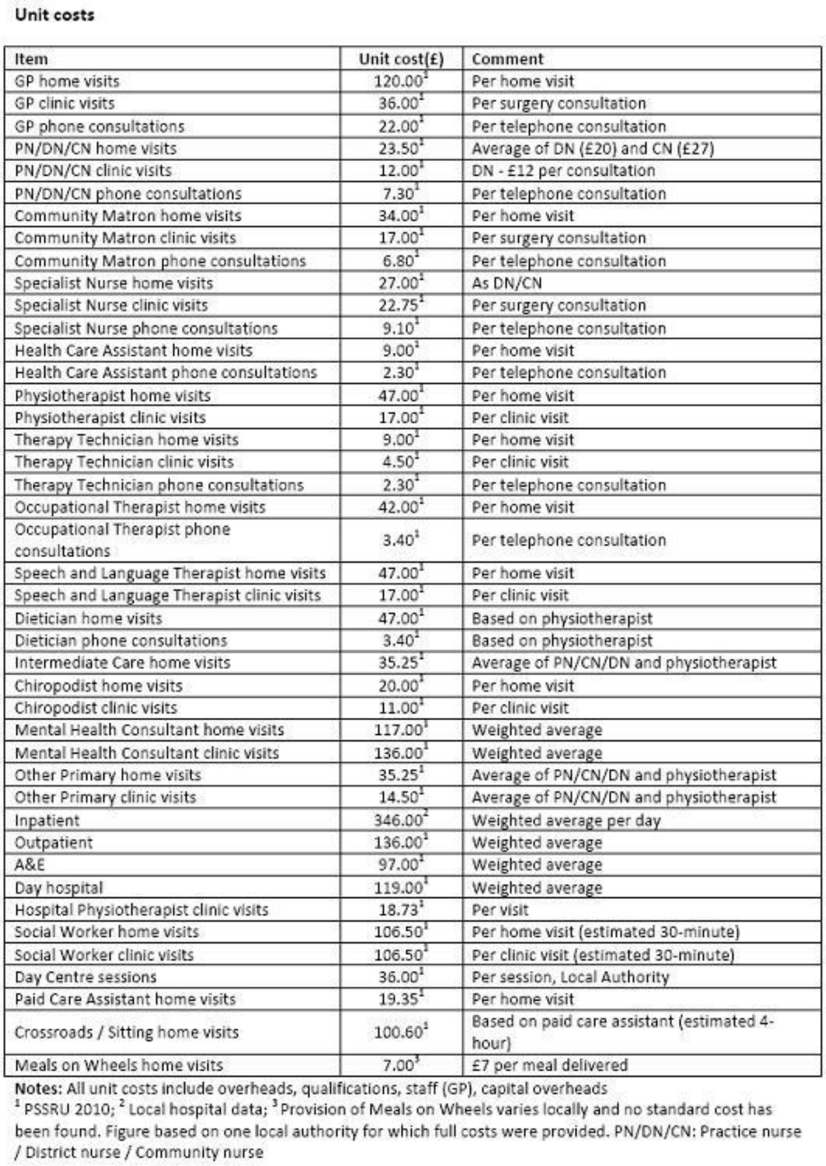


Questions for the discussion groups , using the stories :

- Can you judge whether the professionals and services were working well together at different points in the story?
- Imagine you are meeting each of the people at the different time points in their stories. What would you need to ask them, to understand if they thought the professionals were working well together on their behalf?
- Can you see any unintended consequences of the services working together?
- Thinking about these stories and your own experience what do you think is the most important way of knowing if professionals are working well together?

Thank you

Appendix 6: Economic Analysis Service Costs



Unit costs

Item	Unit cost(£)	Comment
GP home visits	120.00[1]	Per home visit
GP clinic visits	36.00[1]	Per surgery consultation
GP phone consultations	22.00[1]	Per telephone consultation
PN/DN/CN home visits	23.50[1]	Average of DN (£20) and CN (£27)
PN/DN/CN clinic visits	12.00[1]	DN - £12 per consultation
PN/DN/CN phone consultations	7.30[1]	Per telephone consultation
Community Matron home visits	34.00[1]	Per home visit
Community Matron clinic visits	17.00[1]	Per surgery consultation
Community Matron phone consultations	6.80[1]	Per telephone consultation
Specialist Nurse home visits	27.00[1]	As DN/CN
Specialist Nurse clinic visits	22.75[1]	Per surgery consultation
Specialist Nurse phone consultations	9.10[1]	Per telephone consultation
Health Care Assistant home visits	9.00[1]	Per home visit
Health Care Assistant phone consultations	2.30[1]	Per telephone consultation
Physiotherapist home visits	47.00[1]	Per home visit
Physiotherapist clinic visits	17.00[1]	Per clinic visit
Therapy Technician home visits	9.00[1]	Per home visit
Therapy Technician clinic visits	4.50[1]	Per clinic visit
Therapy Technician phone consultations	2.30[1]	Per telephone consultation
Occupational Therapist home visits	42.00[1]	Per home visit
Occupational Therapist phone consultations	3.40[1]	Per telephone consultation
Speech and Language Therapist home visits	47.00[1]	Per home visit
Speech and Language Therapist clinic visits	17.00[1]	Per clinic visit
Dietician home visits	47.00[1]	Based on physiotherapist
Dietician phone consultations	3.40[1]	Based on physiotherapist
Intermediate Care home visits	35.25[1]	Average of PN/CN/DN and physiotherapist
Chiropodist home visits	20.00[1]	Per home visit
Chiropodist clinic visits	11.00[1]	Per clinic visit
Mental Health Consultant home visits	117.00[1]	Weighted average
Mental Health Consultant clinic visits	136.00[1]	Weighted average
Other Primary home visits	35.25[1]	Average of PN/CN/DN and physiotherapist
Other Primary clinic visits	14.50[1]	Average of PN/CN/DN and physiotherapist
Inpatient	346.00[2]	Weighted average per day
Outpatient	136.00[1]	Weighted average
A&E	97.00[1]	Weighted average
Day hospital	119.00[1]	Weighted average
Hospital Physiotherapist clinic visits	18.73[1]	Per visit
Social Worker home visits	106.50[1]	Per home visit (estimated 30-minute)
Social Worker clinic visits	106.50[1]	Per clinic visit (estimated 30-minute)
Day Centre sessions	36.00[1]	Per session, Local Authority
Paid Care Assistant home visits	19.35[1]	Per home visit
Crossroads / Sitting home visits	100.60[1]	Based on paid care assistant (estimated 4-hour)
Meals on Wheels home visits	7.00[3]	£7 per meal delivered

Notes: All unit costs include overheads, qualifications, staff (GP), capital overheads

[1] PSSRU 2010; [2] Local hospital data; [3] Provision of Meals on Wheels varies locally and no standard cost has been found. Figure based on one local authority for which full costs were provided. PN/DN/CN: Practice nurse / District nurse / Community nurse

Appendix 7: Systematic Review Evidence Tables 1 - 3

KEY CHARACTERISTICS OF STUDIES ACCORDING TO INTERPROFESSIONAL WORKING MODEL AND TYPE OF CARE (ACUTE, CHRONIC, PALLIATIVE, PREVENTIVE)

Table1: Case Management Model

RANDOMISED CONTROLLED TRIALS

Study ID/Country	**Research Aims**	**Population & Setting**	**Type of care, intervention** **IG Intervention Group; CG Control group** **Sample size (N), Follow up (FU)**	**Organisation of IPW**	**Applica-bility**
Beland 2006a, b,c Canada	To assess a transformation of the organisation and delivery of health and social sciences with intensified community-based interventions for frail elderly persons	Mean age 82.2 yrs; 29% men; 58% lived alone ; Functional disabilities and high service users; participating care givers Setting: Community	CHRONIC CARE IG: Integrated services (SIPA) System of integrated care for older people. Care management & geronto-geriatrics model N =606 CG: Usual home care without CM. N= 624 FU 73.7%	MDTs had clinical responsibility for delivering integrated care (health/social services), with a publicly managed and funded system. 2 teams in 2 sites (1 per site), Programme Director CMs (N/SW), CN, OT, PT, dieticians, team and family physicians, home aides, pharmacists (1 site only), community organisers (1 site only). Continuous quality assessment, maintaining staff competence through training Intensive CM appropriate for patients/ caregivers, liaising with family physicians, active follow up throughout the care trajectory. Assessment, care planning/ support, education, monitoring, referral, rehabilitation, protocols	2
Enguidanos 2006, Enguidanos 2003 USA	To determine whether geriatric care management (GCM) and/or purchase of service (POS) intervention would lower barriers to access to community based services	Mean age 79yrs; 66% women, >60% living alone 80% low income, high proportion of ethnic minorities, High service users, activities of daily living deficiencies, no caregiver Setting: Home	CHRONIC CARE IG: GCM 4 groups: 1. Information & referral by mail following telephone interview N= 98 2. Telephone care management (TCM), N =113 3. GCM in home N =117 4. GCM with POS – up to $2000 available over 6 months to help implement care plan. N=123 FU 59.3%	Telephone: given by 2 SWs (4 phone calls over 4 weeks) (groups 1, 2) GCM: provided by six Ns and SWs (groups 3, 4). Care plan reviewed by team including geriatrician. CM: RN/ Masters level SW. Case conferences included geriatrician, assistant dept. manager. 1 home visit, several follow up calls or visits, approx 20 hrs/ case over 8-9 months, extensive coordination among community and KP service providers. Assessment, counselling/advice, care planning/ support, monitoring, referral, CM	3
Leung 2004 Hong Kong	To evaluate the cost benefit of a case management project for older persons in Hong Kong	Mean age IG: 74.4 yrs; 57% men, Older people with history of hospitalisations Setting: Home	CHRONIC CARE IG: Case Management N=130 CG: Conventional (often fragmented) health and social services N=130 FU 90.8%	CMs (RN/SW) assumed lead role and served impaired elders, monthly case conferences, budgets not clear. CGA, formulation of care plan, formal referral to integrated services, case conferences, counselling, health education, support groups. Biweekly home visits and/or phone consultations, CMs conducted 361 home visits, 1171 telephone consultations, 145 face to face counselling sessions at the hospital, 424 case discussion meetings and 157 referrals to community health and social services. Stable IDTs, integrated, SW & RN meeting multidimensional needs.	2
Marshall	1.To evaluate a CM	Mean age IG 82.5	CHRONIC CARE	Geriatrician served as a physician advisor,	3

1999 USA (Long 1999 Related study analysed costs of care in 77 people who died)	model designed for older people enrolled in Ohio 1.To examine the use and cost of care in the last month of life	yrs; around half lived alone; 65% women Enrolees at high risk for poor outcomes, approaching end of life, confined to home, high service use Setting: HMO	IG CM coordinated KP services N = 140 CG: Usual care N=152 FU 71.2% (differential FU; CG more likely to live alone and older No. died IG 34, CG 43	Two CMs (N, SW) with geriatric CM experience. Protocol led intervention defined services required. Weekly meetings with geriatrician, care plan developed in liaison with PCPs. Home visit (2-4 hours) for assessment; 1 home visit every 6 months but up to 1 visit per week for some enrolees. The CM model emphasised the team-developed coordinated care plan, a patient agency, or advocacy model, coordinated by CM. Assessment, counselling/advice, care planning, support, monitoring, referrals, rehabilitation, protocols	
Aiken 2006 USA	To evaluate a Phoenix Care program of palliative care for seriously chronically ill elders who simultaneously received active treatment from MCO	Mean age 68.5 yrs; IG: 58% women, CG: 70% women Setting: Home	**PALLIATIVE CARE** IG: Palliative care: Intensive coordinated CM for disease management and preparation for end of life; N=101 CG: Usual care (provided by the MCOs) N=91 FU 47% 6 months; 38% 9 months (higher in IG) Power calculation not reported	RNs assumed leadership role; MD, SW, pastoral counsellor provided support to CMs. PCP, health plan CM (if applicable), patient/family and community agencies. CM had caseloads of 20-35 patients, Telephone &home visits, 44 visits by team (mean/ month 3.3-6.3) Assessment, care planning and support, monitoring, medication, referrals, CM, palliative care Focus: self management for physical and mental functioning, utilisation of medical services	2/3
Stuck 1995 USA (Alessi 1997; Rubenstein 1994)	To evaluate the effects of CGA with preventative home visits on disability in older persons living in the community	Mean age 81.0 yrs, 70% women, 64% Living alone Setting: Home	**PREVENTIVE CARE** IG: Annual CGA with preventive home visits, three year follow up N=215 CG: Maintained their usual health care regimen N=199 FU 76.6% (available for data)	Home visits by GN practitioners who, in collaboration with geriatricians, assessed disability, gave specific recommendations, and health education, monitoring, referrals 3 year intervention, annual CGA, in home follow up visits every 3m and telephone as needed. MDT: Weekly face to face team meetings, shared care plan, joint decision s, team leader not specified although GNs consulted with geriatricians Over 90% participants visited by NP	3
Stuck 2000 Switzerland	To evaluate the effects of preventative home visits with annual multidimensional assessments on functional status and nursing home admissions in low risk compared with high risk older persons.	Mean age 82.0yrs, >70% women Setting: Home	**PREVENTIVE CARE** IG: CGA with home visits, two year follow up Low risk N=148, High risk N= 116 CG: Usual care (No assessment, follow up) Low risk N=296 High risk N=231 FU 85.6%	Three qualified public health nurses Annual multidimensional assessment in own homes: CGA by nurses, discussed with geriatrician, developed recommendations and visited every 3 months to monitor implementation/check for new problems, access to therapies An IDT (physical PT, OT, dietician, SW) was available to the nurse for discussing complex problems. Team leader not clear No follow up visits in 3rd year	2

NON RANDOMISED STUDIES: Case Management Model

Study ID/Country	**Research Aims**	**Population & Setting**	**Type of care, design and comparison groups, IG Intervention, CG Control, Sample size N, FU follow up**	**Organisation of IPW**	**Applica-bility**
Achterberg 1996 Netherlands	To evaluate the effects of coordination of care on continuity and quality of patient care?	Mean age 74.4 yrs, 71% women, with chronic disease, 56% living alone Setting: Community (urban and rural)	**CHRONIC CARE** IG Professional/ non-professional care coordinators N=65 CG No coordinator; N=43 FU 67% At 12 months: IG 44 CG coordinators; 28 no coordinators Interviews with patients &coordinators to assess effectiveness (Pre-structured with patients; open structured with co-ordinators)	Professionals (N-19) included community nurse, family physician, social worker, manager/in-taker from home-help agency. Non-professional care givers/coordinators (N=-22) included a relative, a neighbour, or a friend of the patient. Both groups had equal numbers of men and women. Formal network mostly GPs and home helpers; informal network mostly family members (total 7 persons in network) Systematic working to deliver total care Follow up meetings organised separately for professional and informal care givers; Experiences and (potential) problems discussed; Care plan reached by consulting and reaching mutual agreement between coordinators and care givers Co- ordinators instructed to performed tasks: Introducing themselves to patient, making care inventory, care plan, client network & caregivers, monitoring care, execution & evaluation of care plan Coordinators newly created; client caregivers and networks already present No budgets or authority	3
Gravelle 2007 (Quantitative) Boaden 2006 2009, (Qualitative) England	To determine the impact on outcomes in patients of the Evercare approach to case management of elderly people	Men and women aged 65 yrs and over, high risk (two emergency admissions in the preceding 13 months), more having health deprivation Setting; Primary care practices from 9 Trusts	**CHRONIC CARE** Practice level before-after analysis of data: Quantitative and qualitative evaluation IG Practices enrolled in Ever care CM model (n 64) CG other non-Ever care practices (n 6960-7695) in the nine trusts that were piloting Evercare	Introduced into the NHS, Primary Care Trusts by UnitedHealth Europe, a key component of the national community matron policy; Advanced practice nurses conducted CGA, agreed individualised care plans with the patient, the GP and other secondary care staff and patients were monitored according to their classification risk. Newly created team for the Evercare sites. Non Evercare sites recruited non nurse case managers. Access to case management added a frequency of contact, regular monitoring, psychosocial support, and a range of referral options that had not previously been provided to frail elderly people (Qualitative data)	2

IPW inter-professional working, CM Case manager/management, CN Community nurse, GN geriatric/gerontology nurse, MD Medical Director, N nurse, OT Occupational therapist, PCP Primary care physician; PCPr Primary care provider, PT physiotherapist, RN registered nurse ,SW Social worker, HMO/MCO Managed care organisation, MDT Multidisciplinary team, , IDT Inter-disciplinary team, CGA Comprehensive geriatric assessment, GP General physician/practice.
Applicability score 1-4 NICE criteria: 1.Applicable across a broad range of populations and settings; 2. Applicable across a broad range of populations and settings assuming they are appropriately adapted; 3. Applicable only to populations or settings included in the studies, and broader applicability is uncertain;4. Applicable only to settings or populations included in the studies

Table 2: Collaboration Model: Key characteristics according to type of care

RANDOMISED CONTROLLED TRIALS

Study ID/Country	Research Aims	Population & Setting	Type of care, intervention IG Intervention Group; CG Control group Sample size (N), Follow up (FU)	Organisation of IPW	Applica-bility
Garasen 2007, 2008, Norway	To evaluate the effect of intermediate care (IC) at a community hospital on readmissions, need of home care services and long term nursing homes	Mean age 80.9 yrs; 78% women (IC), in need of hospital care and expected to return home (excludes psychiatric cases) Setting: community hospital	**ACUTE CARE** IC: Individualised IC at community hospital N=64 IG: Assigned community hospital/care (including IC, those not yet referred), N=72 CG: Usual routine hospital care , N=70 FU 75.3%	IP Teams involved in admission to community hospital; include physicians, community care home facilities, GPs but unclear if involved directly with intervention CNs at point of referral to hospital. Nurse assessment with full patient involvement, trained nurses sent discharge letters to physicians, monitored function at IC and general hospital. Patients transferred to IC within 24 hours of recruitment to study. Step down facility. Trained Nurses: 16.7 man-labours/week, GPs: 37.5 hours/week Assessment to manage independently with full patient involvement, care planning, reablement, intermediate care, monitoring, referrals	3
McInnes 1999, Australia Ranmuthgala 1997	To assess whether GP input into discharge planning for high risk elderly patients improves patient outcomes	Mean age 81 yrs; Over 55% women, Frail elderly in-patients at high risk of readmission, high service users, carer stress, self care dependencies. Setting: Hospital to home	**ACUTE CARE** IG: A pre-discharge visit performed by a GP, and recommendations given following consultation. N=205 CG: Standard DP alone N=159, (power calculation not reported) FU 57.1%	Allied Staff, Geriatrician, GPs invited by the geriatrician to make a pre-discharge visit, liaise with hospital staff , assess patient, access medical notes. Team leader not specified-geriatrician leads collaboration with GP, Assessment, counselling/advice, care planning and support, DP, referrals, rehabilitation, protocols	2
Naylor 1999, USA Naylor 1994	To examine the effectiveness of an advanced practice nurse-centred discharge planning and home follow up intervention for elders at risk for hospital admissions	Mean age men and women, 75.5 yrs, 70% had social support; 42% low income, recently discharged from hospital, high risk for poor outcomes Setting: Hospital - Home	**ACUTE CARE** IG: Patients/ caregivers comprehensive DP & home follow up tailored for high risk N=177 CG: routine DP & home care consistent with Medicare regulations N=186 FU 72.2%	Routine discharge plan, managed by patient's physician and primary nurse. Complex cases involved SW. IG received at least I nurse visit Masters-prepared gerontological advanced practice nurses (PN), visiting nurse; physician. PNs planned discharges & home support, collaborated with patient's physician and team. Comprehensive individual protocol covered first 2-4 weeks post discharge, including patient/carer education interdisciplinary communication. Nurse available by phone (2 calls), 2 home visits in first 2-4 weeks after discharge. Patient & carer assessment (N specialist), referrals, care planning, monitoring, medication, outreach	2
Battersby 2005, 2007, Harvey 2001, Kalucy 2000 Australia	To examine the effects of coordinated care on patient outcomes To effect organisational change at system level in 2	Mean age *Central Project* 74 yrs, *Western:* 67 yrs *Southern* 73 yrs *Eyre* 63 yrs Men & women,> 70%	**CHRONIC CARE** Intervention: SA Health Plus = 8 projects in 4 regions IG: Generic model of coordinated care (CCTU) N=3155; Eyre (chronic & complex) N=955 CG: GP Usual care	Wagner's chronic care model (some projects were with disease specific groups). Partners in health approach Service coordinators (SC): RNs, allied health, PTs, SWs. Co-ordinated Care Training Unit (CCTU) supported/supervised SCs; GPs care coordinators & mentors, paid to develop & oversee care plans. Trained SCs with competency assessment & accreditation (reviewed annually). Clinical groups used evidence based guidelines.	2

	year time frame To develop and test different service delivery and funding arrangements	Health care holders, except for Eyre (IG 47% CG 70%),<10% veterans. Setting: Community	N=1488; Eyre N=402 FU 59.5%; Eyre 47% (data available) Southern (aged care, COPD) Central (Cardiac); Western (Diabetes, COPD); Eyre (Chronic and complex)	SCs used care plan generator which gave guide to recommended services for main conditions over 12 m. GPs conducted medical assessment and agreed services. SCs organised access to services and coordinated patient education, made follow up contacts (phone and face to face) over 12 months. GP contact 1/month, SCs wrote 3 monthly reports; Project leaders (specialists) supported GPs & SCs for reviewing care plans & conducting case conferences for complex cases. Pooled medical fund s for reallocation to reduce emphasis on secondary acute care and increase delivery at primary level.	
Chew-Graham 2007 Burroughs 2007 (qualitative) UK	To test the feasibility of a collaborative care model for the management of depression in older people: The PRIDE trial (Primary Care Intervention for Depression in the Elderly)	Mean age 75.5 yrs 72%women, 53% living independently in own homes. Mean score for symptoms of depression 5.8 (range 2-9); MMSE >=24 Setting; Community (43 practices in one primary care trust)	**CHRONI CARE** IG: Collaborative care managed by a CPN N=53 CG: Usual GP care N= 52 FU 83.8% A nested qualitative study of health professionals and patients regarding the acceptability and effectiveness of intervention	Care managed by a CPN, delivered facilitated self-help programme, close liaison with primary care professionals & psychiatrist according to a defined protocol. Structured assessment, education, manual facilitated self-help intervention (SHADE) sign-posting to other services, e.g. voluntary agencies. Referral to the study was by GPs, practice, district and community nurses Intervention12 weeks: six face-to-face sessions in patient's home, five telephone contacts. Compliance ensured by regular supervision of the CPN with the author SHADE. Reviewed progress every 4 weeks, personal and written regular contact with GP	2
Ollonqvist 2008, 2007 Hinkka 2007, 2006 Finland	To compare networked- based rehabilitation programme with use of standard health and social care services on used formal and informal support	Mean age 78.4yrs; 86% women; approx 70% living alone, 42% Living independently at home. High risk of institutionalisation, eligibility for SII cares allowance. Setting: rehabilitation centres, patient's home	**CHRONIC CARE** IG: Network based rehabilitation to increase independence living in community N=343 CG: Standard social & health care services N=365 FU 88.8%	Key members of the team: Physician, PT, OT, SW. Team leader unclear. Existing team since 2000 having joint funding budgets Three inpatient periods at rehabilitation centre in 8 months. Individual CGA, home visit (OT,PT), follow up visits for recommendations by MDT; municipality representative took part in two thirds home visits 53 networks operating in 46 municipalities and 12 rehabilitation centres, 44 networks in 41municipalities and 7 rehabilitation centres. Rehabilitation centre for 3 stays, evaluation (5 days), followed by home assessment , rehabilitation (11 days), follow up after 6 months (5 days)	3
Llewellyn-Jones 1999 Australia	To evaluate the effectiveness of a population based, multifaceted shared care intervention for late life depression in residential care	Mean age 84.9 yrs, approx 70% widowed; elderly people with depression and without severe cognitive impairment Setting: Self care residential unit and hostel	**CHRONIC CARE** IG: Shared care intervention for depression N=109 CG: Routine care N=111 FU 76.8%	a) MD consultation & collaboration, b) training of GPs and carers in detection and management of depression, c) health education programmes Assessment, counselling/advice, care support, monitoring, referrals, rehabilitation, protocols. Care primarily delivered by GPs and residential staff, with specialist help. GP, resident, staff, psycho-geriatric service, project team members met regularly to ensure programme feasibility and acceptability. Regular monthly meetings, team leader not specified.	2

Byles 2004 Australia (Byles 2002 Qualitative)	To assess the effect of home-based health assessments for older Australians on patient outcomes and hospital/nursing home admissions	Community dwelling older veterans & war widows, aged 70 years+; Setting: Home	**PREVENTIVE CARE** IG: 1.Annual visit and report to GP and telephone follow up 2.As group 1 with second report to GP after telephone follow up 3. Six monthly visits and report to GP and telephone follow up after each visit 4.As group 3 with second report to GP after each telephone follow up N= 942 CG: usual care N=627 FU 69%	Semi structured interviews; telephone follow up; annual visits with reports to GP Home visits, assessments, referrals, advice/counselling, Care planning; Team funding/ team leader not specified Assessments conducted by Ns, SWs, psychologists, PTs, OTs. Each professional attended two regular training workshops. Health professionals collaborated with Divisions of General Practice, Aged Care Assessment teams and Community Options.	3
Hendriks, 2005, 2008a; 2008b (economics) Netherlands	To evaluate the effects and costs of a multidisciplinary intervention programme on recurrent falls and functional decline among elderly persons at risk	Mean age 74.5 yrs, 67% women, 43% living alone. Recently discharged from hospital, assessed by GP cooperative for a fall without cognitive impairment Setting: Home	**PREVENTIVE CARE – HOME BASED** IG: Multidisciplinary falls prevention programme N=166 CG Usual Care (no standard approach for systematic assessment of falls risk) N=167 FU=77.5%	Systematic medical assessment by a geriatrician, GN, a rehabilitation physician in the hospital. Summary/Referrals/recommendation sent to patient's GP for action. OT home assessment (3m after ER admission), referred to social services with recommendations. Team leader not clear Involved counselling/advice, care planning, health education/information, referrals	2/3
Hogan 2001 Canada	To evaluate a standardised, multidimensional, in-home assessment for falls prevention in elderly people who had fallen	Mean age 78.0 yrs, Most in private dwelling; 10% residential, 70% high risk of falling (fallen in previous 3 months) Setting: Community-private dwelling (few in residential facility)	**PREVENTIVE CARE-HOME BASED** IG: Standardised Multidimensional Fall assessment program N=79 CG: Home visit from recreational & leisure involvements N=84 FU 85.3%	Assessors: A specialist in geriatric medicine, 2 Ns, 2 OTs, PT who were trained and had volunteered their time to develop and implement the fall assessment program. Team leader not specified. Initial visit was 1-2 hrs; Assessors met to agree care plans (20 mins/subject). Exercise class provided at day hospital. After intervention, return visit after 6 months to document adherence. Assessment, advice, care planning, medication, referrals, provision of aids/devices.	2
Reuben 1999 USA Keeler 1999 (cost effectiveness)	To assess the effectiveness of CGA consultation coupled with an adherence intervention on health outcomes	Mean age75.8 yrs; 63% living alone; >80% women, people with falls, incontinence, depression, or functional impairment (on screening) Setting: Community, outpatient	**PREVENTIVE CARE – OT PATIENT** IG: CGA consultation plus intervention to achieve adherence N=180 CG: usual care from primary care physician plus non-medical recruitment incentives N=183 FU 97% completed trial	SW, GN practitioner/ geriatrician team, PT (when indicated by falls or impaired mobility); Geriatrician led, with one of six on a rotating basis Interdisciplinary case conference after assessment. Recommendations to patient and their primary physician. Patient phoned by health educator 2 weeks later to discuss recommendations. Adherence component designed to empower patients, improve patient-physician communication. Monitored at 3m, 15m Integration within existing health care systems, makes it suitable for Medicare HMO. Community based screening rather than referral or case finding can be conducted by mail or phone.	3

NON-RANDOMISED STUDIES: Collaboration Model

Study ID/Country	Research Aims	Population & Setting	Type of care, design and comparison groups, IG Intervention, CG Control, Sample size N, FU follow up	Organisation of IPW	Applica-bility
Brown 2003 UK	To establish whether an integrated primary-care-based health and social team is more clinically effective than a traditional non-integrated method of service delivery; comparing two models of care	Mean age 81 yrs, 67% women, received assessment from social services department (SSD), 54% lived alone (sub-sample), 70% IG. more likely to be depressed compared with 50% CG Setting: General practice and health centre	**CHRONIC CARE (and preventive)** Comparison groups: **IG:** Integrated teams in health care centre and GP practice (north of county), N=195 **CG: Traditional care:** SSD and separate team of district nurses attached to a general practice (south of county) , N=198 Semi-structured interviews face to face n=207; FU 72% Qualitative and quantitative data	Improved integration through co-location of existing health & social care teams SW assistants, OTs, OT assistants, DNs (newly formed 1997) Two teams responsible for the management and delivery of community care services to older people and their carers. Involvement of GPs (other than referral) not clear, although they were based at the integrated sites. A developmental worker, helped to resolve practical difficulties and barriers, and reported back to a multi-agency steering group. Regular team-building events, Weekly team meetings,shared assessment and care management processes through the development of joint paperwork and joint visits; Teams retained their own management pathway and team meetings were largely for cross referrals; retained separate professional line-management and budgeting arrangements	2
Davey 2005 UK	To examine whether collaboration between social workers and primary care have detectable effects on outcomes for older people aged 75+ assessed by social services	Mean age 85; 80% women; about 50% lived alone; 44% with severe cognitive impairment and depression; patients referred to social work teams for assessment Setting: Integrated teams in primary health centres	**CHRONIC CARE** Feasibility study comparing two different approaches to collaboration Two areas with high levels of morbidity & deprivation IG: Integrated care: co-location (area1): Social work teams in health centres, co-location with primary care professionals; N=40 CG: Traditional care (area2): Social work teams in community care centres, no co-location with community nurses or GPs; N=39 FU: 72% (full interviews)	Two London Boroughs covered by one health authority, one NHS Community Health Services Trust, 4 Primary care groups & Social Services 2 new integrated health/social care teams (DNs, GPs, SWs), comprising five social work teams into health centre with primary care professionals; communication between the team members were tracked; joint budgets Communication and pre-arranged meetings between IP teams (face to face and phone) and the older people Assessment, care management plan, details of services received from carer or social worker if participant severely cognitively impaired	2
Kane 2006 USA	To compare the effects of the Wisconsin Partnership Program (WPP) on hospital, emergency department (ED), and nursing home utilization with those of traditional care.	Mean age 77.9yrs, some disability Transfer cohort: 80-82 yrs; CG (out) larger % of white enrollees; More WPP required intermediate level of care compared with controls.	**CHRONIC CARE** Quasi-experimental longitudinal cohort design. IG: WPP new enrollees, N=213 CG: services from a combination of traditional fee-for-service programs, Medicare,Medicaid, and community-based waivers. (Community Options Waiver COP-W, Community Integration Programs CIP II). CG1:Control-in, lived in same county as WPP	WPP is variation of Program for All-inclusive Care of the Elderly, aims to reduce use of long term institutions, cost shifting between payer sources, increase continuity of care, improve patient outcomes. Integrates funding from existing Medicaid,Medicare programs into one program through a series of federal Medicare and Medicaid waivers, allowing one fully capitated funding stream. Unlike PACE, WPP does not rely on a day center and allows enrolees to keep their primary physician. WPP implemented through four nonprofit community-based organizations, each serving a different mix of clients and geographic areas. They provide direct healthcare services, as well as subcontracting with hospitals, clinics, healthcare providers.	

		Setting: Homes/community	project, N=220 CG2; Control-out , lived in a comparable area that was not covered by the demonstration, N=219 Transfer cohort: Enrolled in WPP, but came from COP-W and CIP II. (N=70 for each group) Data from administrative records 12 months follow-up data from enrolment are reported	Provides consumer-centered, comprehensive, continuous care across settings and providers, include all Medicare/ Medicaid services (e.g.primary, acute health care, long-term-care support services). Collaborative teams (CM teams): RN, NP, SW/social services coordinator. NP liaises with the WPP client's physician, who usually does not directly participate in team meetings. Other team members may be added as the circumstances of a particular member's needs necessitate. ID Teams are responsible for: assessment, care planning, service authorization and delivery, coordination, monitoring, health education, prevention. WPP members are part of their team to the extent they choose to participate. The team implements, monitors, coordinates the care plan by providing service directly to members and by overseeing and coordinating the delivery of services by contract providers	

IPW inter-professional working, CM Case manager/management, CPN Community psychiatric nurse, DN District Nurse, GN geriatric/gerontology nurse, GP General Practitioner, N nurse, OT Occupational therapist, PN Practice nurse, PT physiotherapist, RN registered nurse ,SW Social worker, MDT Multidisciplinary team, IDT Inter-disciplinary team, CGA Comprehensive geriatric assessment, DP Discharge planning
Applicability score 1-4 NICE criteria: 1.Applicable across a broad range of populations and settings; 2. Applicable across a broad range of populations and settings assuming they are appropriately adapted; 3. Applicable only to populations or settings included in the studies, and broader applicability is uncertain;4. Applicable only to settings or populations included in the studies

Table 3: Integrated Team Model: Key characteristics

RANDOMISED CONTROLLED TRIALS

Study ID/Country	Research Aims	Population & Setting	Type of care, intervention IG Intervention Group; CG Control group Sample size (N), Follow up (FU)	Organisation of IPW	Applica-bility
Cunliffe 2004 UK	To evaluate the effect of an early discharge and rehabilitation service (EDRS) in Nottingham (UK)	Mean age 80yrs, 67% women, 67% living alone, recently discharged from hospital, at risk of worse outcomes Setting: hospital (DP) and home	**ACUTE CARE** IG: Early discharge & rehabilitation N=135 CG: Usual hospital care included existing after-care services N=142	Existing team (from 1998): 2 OTs, 2 PTs, 3 nurses, a Community Care Officer (liaising with social services), 7 trained rehabilitation assistants , medical care by hospital doctor and GP as required; no doctors on EDRS team. Team organisation/leader/joint funding unclear; funded by local health authority Assessment, care planning/support, DP, follow-up care, education (skills), monitoring, rehabilitation; EDRS with individual packages of care: up to 4 visits/day, 7 days per week, duration up to 4 weeks	3
Hughes 2000 USA Multi centre	To assess the impact of Team Managed Home-Based Primary Care (TM/HBPC) on patient outcomes and costs of care	Mean age 70 yrs, mostly men, >80% lived with care giver, 30% low income. Hospitalised terminally ill patients and/or with functional impairments Setting: Home 16 veterans affairs (VA) centres with HBPC programs	**ACUTE & PALLIATIVE CARE** Terminal (N 188) & Non-terminal (N906) groups. IG: DP & post discharge care, TM/HBPC N=981 CG: VA sponsored services, if eligible, (except HBPC), usual post acute services N=985, Power calculation not reported FU 66.6% (6m), 33.9% (12m) completed trial	Physicians, SWs, dieticians, therapists, pharmacists, health technicians, paraprofessional aides, primary care manager; Monthly Team conferences to discuss protocol; Team leader not specified, home based physician served as PCP. Continuous home care (included palliative care) until maximum patient benefit, or a different level of care was required, 24 hour contact, prior approval of hospital readmission, HBPC team participated in DP and management. 1883 care givers. 2 day training of study personnel. Intervention included integrated networks, screening for high risk, management across organisational boundaries. *Mean visits: 0.85 physician, 3 nursing, 0.5 SW/month. Physicians input 24.3 hours/m*	3
Melin 1993 Sweden	To examine the impact of a primary home care intervention program on functional status, use and costs of care	Mean age 80.0yrs, 71% women; over 70% widowed or living alone High risk of dependency, recently discharged from hospital Setting: Home	**ACUTE CARE** IG: Coordinated post discharge rehabilitation in the home N=150 CG: Usual post discharge care N=99, Power calculation not reported FU 73.5% (completed data)	Physician led home care with a 24 hour service Team: Project physician, a PCP, DN, PT, OT, assistant nurse, secretary. Care reviewed at weekly team conferences conducted by the project physician, and attended by DN, home service assistant, consultant geriatrician, psychiatrist. Team physician coordinated post hospital care & rehabilitation. Assistant nurse assessed patients; OT, PT conducted home visits & initiated rehabilitation; DN administered 24 hr medical & social services. Care planning/support, monitoring, referrals Home visits: Physician every week day; DN's, nurse assistant, home aides when needed.	2
Nikolaus 1995, 1999, 2003 Germany	To evaluate the effect of a home intervention program by a multidisciplinary team (HIT) on older	Mean age 81.5 yrs; over 70% women; frail elderly recently discharged from hospital	**ACUTE CARE & PREVENTIVE** IG: CGA & HIT, post discharge falls prevention N=181 AG: (Assessment) CGA with GP	HIT: geriatrician, nurses, PT, OT, SW, secretary; First home visits by OT, N or PT, a home visit after discharge, 3m after services in place, one year after randomisation. Team leader not specified, newly created team, joint budgets Patient contact monthly by telephone to discuss falls, related injuries. Assessment,	3

	people with functional decline	Setting: Hospital and home	recommendations for post discharge care N=179 CG: Usual care N=185 FU 77%	advice, care planning/ support, reablement, monitoring	
Weinberger 1996 USA	To evaluate the effect of an intervention designed to increase access to primary care after discharge from the hospital, on patient outcomes and resource use	Mean age 63.0 yrs, Older people, mostly men, at risk of readmission; recently discharged from hospital, (hospitalised for general medical conditions) Setting: Inpatient & outpatient (9 VA centres)	**ACUTE CARE** IG: DP & post discharge care by primary care nurse (PCN) and PCP N=695 CG: Usual post discharge care with no access to primary care nurse for assessment N=701 FU 83%	Care provided by one licensed registered VA nurse, one PCP, Study Ns had experience with VA, nurse coordinated care, 9 VA centres. 96 attending physicians (most specialised in internal medicine, few family practice), 6 fellows in general medicine, 12 house staff, mean of 4.8 years of VA experience. PCN assessed patient's post discharge needs; telephoned patient within 2 days after discharge to assess needs, provide advice. PCP and PCN reviewed & updated treatment plans at the first post discharge appointment, monitored progress, used protocols. 89% patient compliance with protocol.	3
Banerjee 1996, UK	To investigate the efficacy of intervention by a psycho geriatric team in the treatment of depression in elderly disabled people receiving home care	Mean age 80.4 yrs, 85% women, 82% living alone, receiving home care from local authority, but not under psychiatric care for depression Setting: Home	**CHRONIC CARE** IG: Team based psychogeriatric home care (Naturalistic model) N=69 CG: Usual GP care N=33 FU=88.4%	Individual package of care and management plan formulated by a MDT. CPNs, OT, medical staff, SW, psychologist for any combination of interventions; each person had key worker, and implemented by researcher. All team members may be assigned any case referred. Existing team. IG differed in their management only by their all being assigned a doctor. Type of care: Physical, psychological, social interventions, assessment (both groups), counselling/advice, care planning/ support, monitoring, medication, referrals, CM	2
Bernabei 1998, Italy	To evaluate an integrated medical & social care programme among frail elderly people living in the community	Mean Age 80.7 yrs, 71% women, multiple geriatric conditions Setting: Community, home	**CHRONIC CARE** IG: Integrated care (medical/social services) & CM, N=99 CG: Usual primary & community care, N=100 FU & power calculation not reported	Community geriatric evaluation unit (GEU) included geriatrician, SWs, Ns, 2 CMs did assessments, reported to GEU. Individualised care plans by GEU in agreement with GPs. MDTs met weekly. Segments of team already existing but integration newly created, joint budgets. CMs conducted initial CGA, and every 2 months after; provided extra help as requested by patients & GPs, latter conducted physical examination; Care included support, DP, medication, rehabilitation, CM	3
Montgomery 2003 Canada	To examine the impact of enhanced access to geriatric assessment and case management on resource use	Mean age 81.4 yrs; 69% Women, 89% good social support; 59% lived alone, frail elderly at high risk of adverse health outcomes, recently discharged from hospital Setting: Home	**CHRONIC CARE** IG: Comprehensive CM with enhanced access to services N=82 CG: Home care coordinator and usual follow up N=82 FU 92.7%, Power calculation not reported	Trained Coordinator, geriatrician (If acute care hospitalisation was required clients were referred back to their GP), day-hospital team. Newly created team but referrals from existing team CGA and individual care plan developed upon referral, reviewed with geriatrician & day hospital team, with MD input to patient care. CM, multidimensional assessment (included social support) by trained coordinator, & enhanced access to geriatric medical & day hospital services. Options included home assessment by geriatrician/ team members Day-hospital assessment by appropriate team members & referrals (planned within one week), fu 3 months to ensure provision of required resources	2
Sommers 2000 USA	To examine the impact of an	Mean age 78 yrs, approx 70% women,	**CHRONIC CARE**	Close collaboration among a PCP, RN, Master's qualified SW. N/SW divided time among 3 intervention physicians. IP team met 24 times during 18 months; clinicians	4

	interdisciplinary, collaborative practice level intervention for community dwelling seniors with chronic illnesses	elderly with chronic conditions and at high risk for hospital readmissions. Controls less likely to live alone and use support services Setting: Home	PCPs randomised IG: The Senior Care Connection (SCC) intervention N=280 CG: Physicians did not re-review patients N=263 FU 79.4%, Power calculation not given	attended 9 educational sessions taught by geriatricians; team requested continuation of SCC in 2/3 counties, funded locally. 9 teams: Ns/SWs trained to learn team building, strategies to coach patients in chronic disease management. Assessment, discussed by team, risk reduction plan. Monitoring through office visits, phone calls, home visits, coached self management, promoted service use, monthly review. 14 months fu. SCC had at least 1 face to face contact (other than initial home assessment) with N/SW. Patients averaged 34 N/SW contacts, 22 min duration, every 21 days, most by phone	
Brumley 2007, 2003 USA	To determine whether an in-home palliative care (IHPC) intervention for terminally ill patients can improve patient satisfaction, reduce costs, and increase the proportion of patients dying at home	Mean age 73.8yrs, 49% women, most lived in own home/apartment; 33% low annual income Terminally Ill patients, 2 sites with similar demographics except for minority ethnic Colorado 10%; Hawaii 63% Setting: home & hospice care, HMO	**PALLIATIVE CARE** IG: IHPC program plus usual care N=155 CG: Standard care followed Medicare guidelines for home healthcare N=155 FU 95.8% (data available) Colorado: HMO contacts outside service providers Hawaii: HMO provides all care, accepts referrals, refers patients to outside providers for hospice care only.	IDT responsible for coordinating & managing care across all settings, home based visits, assessment, counselling, evaluation, planning, care delivery, follow-up monitoring, continuous reassessment of care. Palliative care physician (team leader), patient & family, PCP, N, SW (experienced in symptom management & psychosocial intervention. Spiritual counsellor, bereavement coordinator, home health aide, pharmacist, dietician, volunteer, PT, OT, speech therapist, joined the core team as needed. IDT developed care plan according to wishes of the patient/family. Telephone interviews (approx 20 mins) within 48 hours of enrolment IHPC program added three modifications to the standard care: no requirement for physicians to give 6 month prognosis of life expectancy, patients continue to have curative/primary care, and a palliative care physician coordinating care from health care providers.	
Hughes 2000 USA Multi centre *See acute care*	To evaluate a Team Managed Home-Based Primary Care (TM/HBPC) in elderly people living at home *See acute care*	Mean age 70 yrs, mostly men, >80% lived with care giver, impairments 16 VA centres with HBPC programs *See acute care*	**PALLIATIVE & ACUTE CARE** Terminal (N 188) & Non-terminal (N 906) groups. IG:DP & post discharge care, TM/HBPC included palliative care N=981 CG: Usual care & VA services *See acute care*	Physicians, SWs, dieticians, therapists, pharmacists, health technicians, paraprofessional aides, primary care manager; Monthly Team conferences to discuss protocol; home based physician served as PCP. Continuous home care (included palliative care) until maximum patient benefit, or a different level of care was required, 24 hour contact, had care givers. Intervention included integrated networks, screening for high risk, management across organisational boundaries *(see acute care)*	3
Counsell 2007 USA	To test the effectiveness of a geriatric care management model on improving the quality of care for low income seniors in primary care	Mean age 72 yrs, approx. 75% women; 45% living alone, >85% County Medical Assistance Setting: Home	**PREVENTIVE CARE – HOME BASED** IG: GEM, Geriatric Resources for Assessment and Care for Elders (GRACE) N=474 CG: access to all primary and speciality care services available as part of usual care N=477 FU 77.9% (24months)	3 GRACE teams: Nurse practitioner, SW. IDT meeting after assessment, to prepare care plan in collaboration with GP. Patients received 2 years of home-based care management by an IDT guided by 12 care protocols for common geriatric conditions, and web based care management tracking tool. Annual in home reassessment of care plan, support, monitoring, medication, referrals. Integrated pharmacy, mental health, home help, community based inpatient geriatric care.	3

				Patient visits as appropriate, - minimum of 1 in-home follow up visit to review care plan, 1 telephone/ face-to-face contact/ month, & face- to- face visit after ER visit or hospitalization.	
Nikolaus 1995, 1999, 2003 Germany	To evaluate a falls prevention programme by a multidisciplinary team (HIT) *See acute care*	Mean age 81.5 yrs; over 70% women; frail elderly recently discharged from hospital Setting: Hospital and home	**PREVENTIVE CARE-HOME BASED & ACUTE CARE** IG: CGA & HIT, post discharge falls prevention N=181 AG: CGA plus recommendations N=179 CG: Usual care N=185, FU 77%	HIT: geriatrician, nurses, PT, OT, SW, secretary; First home visits by OT, N or PT, a home visit after discharge, 3m after services in place, one year after randomisation. Team leader not specified, newly created team, joint budgets Patient contact monthly by telephone to discuss falls, related injuries. Assessment, advice, care planning/ support, reablement, monitoring *See acute care*	3
Boult 2001, USA Boult 1994, 1998, Morishita 1998	To measure the effects of outpatient GEM on high-risk older person's functional ability, use of health services and satisfaction	Mean age 78.8 yrs, 55% men, most in independent residence, high risk for hospital/nursing home admissions, recently discharged from hospital Setting: Ambulatory clinic in community hospital	**PREVENTIVE CARE - OUTPATIENTS** IG: CGA and GEM N=294 CG: Usual care from physician N=274 FU 97% completed interviews, power calculation not given	3 existing teams each with Geriatrician, GN, N, SW, delivered primary care A 4-step enrolment & CGA process, 24 hours on call services, IDT diagnosed and treated all problems, developed care plans together, included referrals, used protocols, assigned individual responsibility for specific follow up actions. Liaison with PCP. Individual team members met patients monthly. Home visit by GEM SW. 2 visits to GEM clinic to see GN & geriatrician, (free transport if needed), plus telephone contact. Average intervention 6 months then discharged to PCP with recommendations. Each team had case load of 45-52 active patients, clinic one day per week, with average of 11.5 patients. Visits approx 90 mins. *Contacts:* nurses 23.5/week, total weekly time by staff 216 mins; *Referral* services used most frequently were physician consultations 44.9% for GEM	3
Burns 2000, 1995 USA	To compare the effectiveness of long-term primary care management by an interdisciplinary geriatric team with usual ambulatory care	Mean age 71.7 yrs, mostly men, VA. High risk, recently discharged from hospital, activities of daily living (ADL) deficits, multiple conditions (excluded terminal ill, dementia, risk of nursing home admissions) Setting: Outpatient Clinic	**PREVENTIVE CARE - OUTPATIENT** IG: GEM clinic, Individualised follow up indefinitely N=60 CG: Usual care. In-patient evaluation/rehabilitation provided in extended care units/rehabilitation units. N=68 FU 76.6% (deaths reported)	IDT: physicians, NPSW, psychologists, clinical pharmacists. GEM team did not always control hospital admission, which could occur via other mechanisms (e.g. emergency room, speciality clinics). Initial assessment involved the entire team (2 hours), team individualised plans including follow up & aftercare, long term management, referrals, rehabilitation Follow up in GEM clinic, was with most clinically appropriate health care professionals/team members for ongoing care and consultations. No set scheduled return visits for patients.	3
Cohen 2002 USA (See Schmader 2004)	To assess the effects of inpatient units and outpatient clinics for geriatric evaluation and management on	Mean age 74.2 yrs, men, hospitalised on a medical or surgical ward, frail elderly, high risk of hospitalisation	**PREVENTIVE CARE - OUTPATIENT** IG 4 group design: inpatient GEM or usual care followed by outpatient GEM or usual care. N=692	GEM inpatient & outpatient teams, each consisting of a geriatrician, SW, N followed standard GEM protocols for screening, developing care plan, preventive and management services. Included CGA to evaluate the caregiver's capabilities, patient's social situation, care plan discussed twice a week by GEM team.	3

	survival and functional status	Setting: Multi centre randomised trial at 11 VA medical centres; (Hospital inpatient and outpatient clinic)	CG received all appropriate hospital services except for those provided by the team on the GEM Unit. N=696 FU 78.6%	Counselling/advice, care planning, monitoring, medication, rehabilitation, coordinating services, use of protocols.	
Schmader 2004 USA (see Cohen 2002	To evaluate inpatient or outpatient GEM on adverse drug reactions & suboptimal prescribing	Demographics as above; frail elderly people at risk of adverse drug reactions and under-prescribing of medications.	**PREVENTIVE CARE** GEM Outpatient As above 11 VA clinics	All 11 inpatient and outpatient GEM programmes had a core team that included a geriatrician, SW, and nurse. Pharmacists performed regular assessments and recommendations regarding medications in seven inpatient and six outpatient teams. Teams without a regular pharmacist had access to one to review medications. For GEM patients, teams implemented evaluation and management protocols.	3
Englehardt 1996 USA Toseland 1996; 1997	To compare the effectiveness , service use and costs of outpatient GEM with usual primary care	Mean age 71.7 yrs, VA, frail elderly, high risk, recently discharged from hospital> = 2 ADL limitations, not receiving oncology, rehabilitation home or day care Setting: Outpatient Medical Clinics	**PREVENTIVE CARE- OUTPATIENT** IG: GEM, with CGA & coordination with other providers within and outside VA. N=80 CG: Usual primary care N=80 FU 76.9%	GEM team: NP, a board certified geriatrician, SW. GEM provided CGA, care planning/support, monitoring, referrals, rehabilitation, care management Care provided by NP, Geriatrician served as consultant to NP and supervised patients' care. SW coordinated team activity and addressed patient s' and caregivers' psychosocial/ financial needs and referrals. Social work services rendered on a consultation rather than a routine basis	3
Epstein 1990 USA	To evaluate the benefits of CGA for elderly ambulatory patients on mortality, health care use, satisfaction and health status	Mean age 77 yrs, approx 50% women, low socio-economic status, high risk (re-hospitalisation); recently discharged from hospital Setting: Out patient Mixed setting-HMO; Co-location-Rhode Island & Providence, RI.	**PREVENTIVE CARE - OUTPATIENT** IG: GEM team, extra medical attention, including CGA N=185 SO: Second opinion internist (no special geriatric training); N=210 CG: Usual HMO inpatient care or outpatient care (attending physicians/ house staff); N=205 FU=89.7%	CGA included 2 hour examination by a geriatrician, GNP, a geriatric SW. Geriatricians examined patients & reviewed records. Nurse conducted assessment SW reviewed social support, function, economic & environmental issues. Geriatricians were trained in a clinical fellowship training programme Emphasis on minimising the use of multiple different personnel to ensure coordinated care among the teams, hence 10 geriatricians but only 3 N-SW teams(new). Care planning, referrals, use of protocols, targeted continuity of care Team meetings for care planning, consult inpatient & family (15mins). Non structured 1 hour assessment from SO Group.	3
Fordyce 1997 USA	To develop and test an assessment which is able to measure changes in participants' health/functional status	Older people aged 65 and over, 55% women, 30% low/moderate income, fair or worse health at risk of rehospitalisation. Setting: Hospital outpatient clinic and patients' own home	**PREVENTIVE CARE - OUTPATIENT** Senior Team Assessment and Referral Program (STAR) (Original random assignment IG N=1000, CG N= 1000) IG: GEM Outpatient plus home N=326 CG: Usual medical care; originally drawn from the Kaiser Permanente health plan	STAR offered minimally staff intensive model, for a short but comprehensive health appraisal Annual GEM plus in-home evaluation by NP, (appeared to be team leader), findings to STAR team (geriatrician, health educator, geriatric psychiatrist), recommendations to PCP, participants & PCPrs. NP undertook CM, usually by phone, to monitor implementation of recommendations, Weekly team meeting and regular CM follow up by Team Conferences. Good ongoing communication among STAR team, NP and PCPs. Assessment, counselling/advice, care planning /support, monitoring, referrals, CM	3

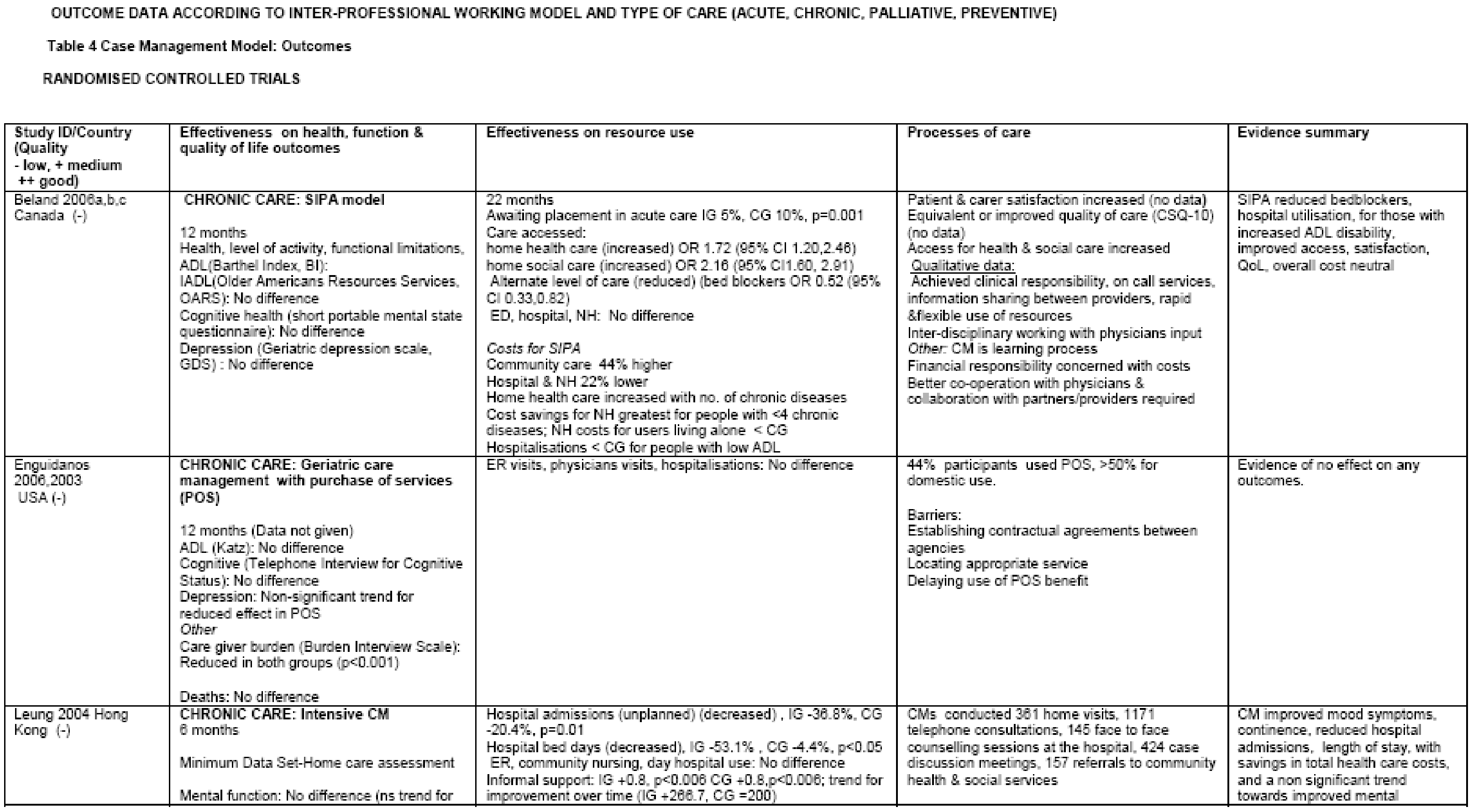
			N=764 FU 75.7% completed evaluations		
Phelan 2007 USA Cluster randomised trial	To evaluate the effect of a team of geriatrics specialists on the practice style of primary care providers (PCPs), the functioning of their patients aged 75 and older and hospital admissions	Mean age 81 yrs, 65% women, 45% living alone, vulnerable patients recently discharged from hospital Setting: HMO Outpatient clinics	**PREVENTIVE CARE - OUTPATIENTS** PCPs (Intervention & Control Practices) IG: Senior Resource Team (SRT) assessment screening & evaluations N=434 CG: Usual care N=442 FU 78%	Trained SRT: geriatric specialist clinicians, geriatrician, gerontological advanced RN practitioners, (off site) pharmacist with specialised geriatric training. Nurses conducted full assessments (1 hour), follow up (face to face & telephone) after 2 weeks during which time team discussed medications, care plans. Gerontologist met patient on return visit. Goals set. Medication changes as needed and other interventions. Pharmacists made recommendations on medication to the advanced nurses before follow up. Geriatrician and nurses reached consensus on patient priorities after assessment. Care support, advice monitoring, reablement SRT met weekly to address team operations and ensure that they were following a standard approach with each patient. Team leader not specified	4
Silverman 1995 USA	To evaluate the process and outcome of outpatient consultative geriatric assessment compared with traditional community care.	Mean age 74.6 yrs, over 75% women, 59% lived alone, 68% low income Medicare or Medicaid with instability (change in health status) Setting: Hospital Outpatient clinic (Geriatric Assessment Unit (GAU))	**PREVENTIVE CARE - OUTPATIENTS** IG: Outpatient consultative geriatric assessment. CG: Usual care from physicians in the community	Core assessment team: an internist (specialist) in geriatric medicine, GN, geriatric SW. Team leader not clear Team provided outpatient CGA & evaluation generated a comprehensive care plan. (About 4 hours/patient). Family conferences conducted after assessment to discuss the treatment plan with patient/family. GAUs did not provide any rehabilitative services directly, accepted referrals directly from families, social services, physicians, recommendations communicated to referring physicians by telephone and/or letter; some were implemented directly by the GAUs. The format for communication was not standardised.	4

NON RANDOMISED STUDIES: Integrated team model

Study ID/Country	Research Aims	Population & Setting	Type of care, design and comparison groups, IG Intervention, CG Control, Sample size N, FU follow up	Organisation of IPW	Applica bility
Rahkonen, 2001 Finland	To investigate the effects of a systematic intervention for supporting community care of elderly people after a delirium episode	Mean age 82 yrs,90% women, 82% living alone Setting: Inpatient followed by community rehabilitation	**ACUTE CARE** Before/after intervention cohort study with 3-year follow-up. IG: Emergency admission, continuous care/support followed by rehabilitation and community care, N=51 CG: Patients admitted to the same hospital and discharged to community but without the above intervention, N=51	Case management in an integrated team from a private rehabilitation facility. Continuous care and systematic support by nurse case manager, one rehabilitation period per year in rehabilitation centre. Rehabilitation team: physician, nurse specialist, OT,PT, neuropsychologist, with access to speech therapist and SW. Registered nurse case manager, with public health background, worked as a primary care nurse during rehabilitation. Assessment by nurse and physician. Nurse responsible for providing community care throughout three year follow up, including in-home visits and continuity of care. Community care arranged together with patients, relatives and professionals from social and health care services. 24 hour nurse and physician support available during follow up.	3
Young 2005 UK	To examine the impact of a new intermediate care (IC) service in reducing hospital and long-term care use in elderly people	Median age 85 yrs, 67% women, presenting as emergency admissions to two elderly care departments with disability, mental impairment, , 45% lived alone, recently discharged from hospital Setting: Intermediate care facility, hospital at home	**ACUTE CARE** A quasi-experimental study design IG: Patients recruited after introduction of IC, N=848 CG: Patients recruited before introduction of IC IC provided for up to six weeks according to need, N=800 12 months FU (62%, due to deaths) *Embedded case-control study, N=246 of IG who actually received the IC services (mostly hospital at home)*	Nurses, senior OTs, senior PTs, several care assistants/ helpers, social services staff, dietician, access to CPNs on direct referral basis MDT, Multi-agency, joint care management, assessed need & purchases services delivered through PCT based IC teams,patients in hospital identified for rehabilitation by joint care manager, also referred to the joint care manager by the primary health care team, identified patients for IC assessed by the IC team and a care plan developed with delivery by the care assistants; care support, rehabilitation, reablement. Jointly commissioned by Leeds Health Authority &Leeds City Council, new service also part funded by transfer of money from secondary care	2
O' Connor 1991, UK	To test whether early diagnosis and practical help reduce the number of elderly people with dementia admitted to institutions	Mean age 82-85 yrs, 40-48% living alone, having dementia Setting: General practices, Cambridge	**CHRONIC CARE** Controlled trial of a multidisciplinary team intervention on admission rates of people with dementia Two areas of Cambridge: IG: North of river Cam served by resource team (action group), N=86, 69% referred to resource team CG: South of river Cam: access to usual medical	Resource team: SWs, community psychiatric nurse, OT,PT, volunteer, geriatrician, psychogeriatrician. Weekly MDT meetings for case discussions; key worker oversaw developments, Community psychiatric nurse & SW devised interventions, Team provided personal contact, practical advice, family counselling, liaison with GPs and other agencies, relatives' support groups, social groups, a volunteer service, night sitters, and respite admissions IG offered a wide range of help including financial benefits, physical aids, home helps, respite admissions, practical advice and psychiatric assessments, monitoring, counselling, care support, home care (Structured interview (CAMDEX, mental & physical assessment)	2

			and social services, N=73 FU: 57% (due to mortality within two years)	Referrals from various sources, GPs, community nurses; Jointly conducted by social services department and the health authority; project funded by charitable trust	
IPW inter-professional working, CM Case manager/management, GEM Geriatric Evaluation & Management, CPN Community psychiatric nurse, DN District Nurse, GN geriatric/gerontology nurse, GP General Practitioner, N nurse, OT Occupational therapist, PCP Primary care physician, PN Practice nurse, PT physiotherapist, RN registered nurse ,SW Social worker, MDT Multidisciplinary team, IDT Inter-disciplinary team, CGA Comprehensive geriatric assessment, DP Discharge planning, HMO Health maintenance organisation *Applicability score 1-4 NICE criteria: 1.Applicable across a broad range of populations and settings; 2. Applicable across a broad range of populations and settings assuming they are appropriately adapted; 3. Applicable only to populations or settings included in the studies, and broader applicability is uncertain;4. Applicable only to settings or populations included in the studies*					

Appendix 8: Systematic Review Evidence Tables 4 - 6



OUTCOME DATA ACCORDING TO INTER-PROFESSIONAL WORKING MODEL AND TYPE OF CARE (ACUTE, CHRONIC, PALLIATIVE, PREVENTIVE)

Table 4 Case Management Model: Outcomes

RANDOMISED CONTROLLED TRIALS

Study ID/Country (Quality - low, + medium ++ good)	**Effectiveness on health, function & quality of life outcomes**	**Effectiveness on resource use**	**Processes of care**	**Evidence summary**
Beland 2006a,b,c Canada (-)	**CHRONIC CARE: SIPA model** 12 months Health, level of activity, functional limitations, ADL(Barthel Index, BI): IADL(Older Americans Resources Services, OARS): No difference Cognitive health (short portable mental state questionnaire): No difference Depression (Geriatric depression scale, GDS) : No difference	22 months Awaiting placement in acute care IG 5%, CG 10%, $p=0.001$ Care accessed: home health care (increased) OR 1.72 (95% CI 1.20,2.46) home social care (increased) OR 2.16 (95% CI1.60, 2.91) Alternate level of care (reduced) (bed blockers OR 0.52 (95% CI 0.33,0.82) ED, hospital, NH: No difference *Costs for SIPA* Community care 44% higher Hospital & NH 22% lower Home health care increased with no. of chronic diseases Cost savings for NH greatest for people with <4 chronic diseases; NH costs for users living alone < CG Hospitalisations < CG for people with low ADL	Patient & carer satisfaction increased (no data) Equivalent or improved quality of care (CSQ-10) (no data) Access for health & social care increased Qualitative data: Achieved clinical responsibility, on call services, information sharing between providers, rapid &flexible use of resources Inter-disciplinary working with physicians input *Other:* CM is learning process Financial responsibility concerned with costs Better co-operation with physicians & collaboration with partners/providers required	SIPA reduced bedblockers, hospital utilisation, for those with increased ADL disability, improved access, satisfaction, QoL, overall cost neutral
Enguidanos 2006,2003 USA (-)	**CHRONIC CARE: Geriatric care management with purchase of services (POS)** 12 months (Data not given) ADL (Katz): No difference Cognitive (Telephone Interview for Cognitive Status): No difference Depression: Non-significant trend for reduced effect in POS *Other* Care giver burden (Burden Interview Scale): Reduced in both groups ($p<0.001$) Deaths: No difference	ER visits, physicians visits, hospitalisations: No difference	44% participants used POS, >50% for domestic use. Barriers: Establishing contractual agreements between agencies Locating appropriate service Delaying use of POS benefit	Evidence of no effect on any outcomes.
Leung 2004 Hong Kong (-)	**CHRONIC CARE: Intensive CM** 6 months Minimum Data Set-Home care assessment Mental function: No difference (ns trend for	Hospital admissions (unplanned) (decreased) , IG -36.8%, CG -20.4%, $p=0.01$ Hospital bed days (decreased), IG -53.1% , CG -4.4%, $p<0.05$ ER, community nursing, day hospital use: No difference Informal support: IG +0.8, $p<0.006$ CG +0.8,$p<0.006$; trend for improvement over time (IG +266.7, CG =200)	CMs conducted 361 home visits, 1171 telephone consultations, 145 face to face counselling sessions at the hospital, 424 case discussion meetings, 157 referrals to community health & social services	CM improved mood symptoms, continence, reduced hospital admissions, length of stay, with savings in total health care costs, and a non significant trend towards improved mental

	improvement) No health problems: No difference Continence: MD -0.19 (-0.3, -0.05) Mood symptoms: IG -0.9, p<0.006, CG -0.9, ns Behavioral symptoms ; No difference (ns trend for improvement)	*Costs:* Savings in acute hospital care & community services compared with IG		functioning, behavioural and informal support
Marshall 1999 USA (Long 1999) (-)	**CHRONIC CARE: CM** 24 months Inconsistent results for all outcomes, baseline differences affected results Self-administered survey ADL: IG +0.18; CG +1.4, p<0.01 IADL :IG -0.08, CG +0.38, p<0.05; Health status: No difference, Improved 12 m Deaths: No difference	Visits: OP/ED No difference; increased 12 m (p<0.01) *Costs:* IG consumed resources in excess of Kaiser Permanente (KP) average adjusted per capita costs, Hospital: reduced Substitution of OP for inpatient care and decrease in total cost of care in IG relative to CG did not occur. Analysis in those who died: Costs of IG higher in last month (p = .068). Hospital admissions & OP visits: increased (ns)	Satisfaction: No difference 24m Satisfaction: Improved (12m) IG +0.08, CG -0.23, p<0.01	CM did not improve health outcomes and was not effective in changing inappropriate service use pattern or reducing total costs Service use & costs higher in last month of life.
Aiken 2006 USA (-)	**PALLIATIVE CARE:** Phoenix care home based CM 9 months *Physical and mental functioning* SF- 36 (over time): IG > CG,p<0.05 General health, IG >CG p<0.05 Overall difference, p <0.05 Deaths: No difference (*One third died in first 3 months affecting statistical power of study*	ED/ER use: No difference No cost data	IG reported having greater information for self-management, handle emergency, ability to resume an activity they enjoyed. Better prepared for end of life: OR 4.47,(95%[CI:1.10, 18.1) Symptom Control: 78%, 90%, 92% reported at least one symptom at time 0, 3 and 6 m	Phoenix palliative care can improve health & function, with better self management of illness, awareness of relevant resources
Stuck 1995 USA (-) (Alessi 1997, Rubenstein 1994)	**PREVENTIVE CARE** 3 years Research & Service Orientated multilevel assessment instrument (RSO-MLA) Prevention of disability ADL: No difference Dependency ADL IG 12% CG 22%; adj OR 0.4 (95% CI 0,2, 0.8), p=0.02 (improved) IADL : MD 3.0 (95% CI 0.60, 5.40), p=0.02 (improved) ; Dependency: IADL: No difference Deaths: No difference	Permanent NH home admission(decreased) RR 0.42 (95% CI 0.19, 0.89) Hospital: No difference Decreased no of short stays (1-7 days) among persons with fair/poor self perceived health OR 0.4 (95% CI 0.2,1.0),p=0.05 Cost: Mean visits 10.9 (+/- 3.2) by nurses, extra physician visits, less savings (less NH days), plus non-pay. 4.1 disability free years, i.e. cost of $6000 per disability free year gained. 692 NH days avoided by intervention, i.e. cost of $35 per day prevented. No changes in use of in home & support services	Over 90% participants visited by nurses. No of recommendations: 5694 (mean 28.8/subject) No. of new problems: mean 19.2 Compliance: 47% full, 14% partial, 37% not adhered	CGA can delay the development of disability and reduce permanent NH stays, with no effect in acute hospital or short term nursing home admission. Fewer NH days did not offset cost of intervention and higher physician visits.
Stuck 2000 Switzerland (++)	**PREVENTIVE CARE** 3 years	Ever admitted to NH: No difference *Low risk* : No difference *High risk* : (increased) RR 1.93 (95% CI 1.24, 3.00); (adjusted	No. problems identified in IG Nurse A and B > Nurse C, p<0.001	Patients with low baseline risk were less dependent in ADL risk for NH admissions, resulting in net

	RSO-MLA instrument Dependency ADL/IADL: No difference, adjusted p=0.03 *Low risk*: less dependent in ADL :RR 0.69 (95% CI 0.48-1.00), adjusted OR 0.6 (0.3-1.0, p=0.04) *High risk*: No differences. *Health status low risk group (adjusted for baseline variables) at 2 years:* General health (COOP): No difference Affect (Geriatric depression scale): No difference **Subgroups according to nurses in Zip code areas: Low risk group** *Nurses A and B*: ADL: OR 0.2 (95% CI 0.03,0.07), p=0.009; IADL :OR O.4 (95% CI 0.2,0.7), p=0.005 (improved) Nurse C*: No difference* **High risk group** *Nurses A and B:* ADL & IADL: No differences Deaths: RR 1.40 (95% CI 0.99, 1.97), ns increase	OR 2.1 (95% CI 1.1, 1.4,p=0.02) **Subgroups according to nurses in Zip code areas: Low risk group** *Nurses A and B* NH admissions: (decrease) OR 0.2 (95% CI 0.0-0.6), p=0.004; *Nurse C:* No difference **High risk group** NH admissions (increased) : OR 6.9 (95% CI 2.0-2.8, p=0.002) Deaths: IG 30% CG 19% OR 1.8 (95% CI 0.9-3.7), p=0.06, ns increase **Costs:** **Low risk Areas A and B:** Costs include preventive home visits, ambulatory care (increased visits to primary care professionals) NH use. Home visits: Reduced in year 3 (no follow up) Reduced NH admissions resulted in net savings of $1403 per person/ year,(off set home visit & ambulatory costs)	>70% subjects reported home visits were helpful 38% felt more confident discussing problems with their physician 30% increased activity 69% in ZIP code C vs. 52% ZIP A/B, p=0.04, were sorry that visits had stopped	savings. High baseline risk patients had unfavourable increase in NH admissions. Effects could be related to the home visitor's performance in conducting the visits

NON RANDOMISED STUDIES: Case management model

Study ID/Country	Effectiveness on health, function & quality of life outcomes	Effectiveness on resource use	Processes of care	Evidence summary
Achterberg 1996 Netherlands	**CHRONIC CARE** Assessed using pre-structured interviews with patients, assigning scores to outcome. 12 months (shown) Perceived health mean score: IG 3.2, CG 3.7, p<0.05 Perceived QoL: ns 6 months: p<0.05 ADL/IADL: No difference IADL (reported less impairment from baseline to fu) Attributed to baseline differences rather than due to intervention effects	None	Patients: IG reported receiving care from more types of care givers and having more network members than CG (p<0.05) at all time points. Average of 3.5 types of formal and informal care givers. IG reported fewer complaints about care givers (6 months, IG 0.7, CG 1.0, p<0.05); no difference 12 months Satisfaction with informal and formal care: No difference Frequency/duration of contacts: No difference Co-ordinators; Open structured interviews *Continuity of care: IG; P=Professionals; NP =Non-professionals* P experienced more effects than NP Interdisciplinary: P 5 reported no effect; NP 14 reported no effect Increased recognition & authority (P 10, NP 4) Interpersonal: 14/38 co-ordinators reported patients received more attention & support; 11 reported improved contacts; 7 had more frequent contacts Informational: Improved access, information (P13, NP5) Other: More methodical working style(P 7, NP 2)	Study offers insight into coordination of care from patients' and co-odrinators' perspectives; It had effects on continuity but no effect on patient satisfaction
Gravelle 2007 (Quantitative) Boaden 2006 Sheaff 2009, (Qualitative) England	**CHRONIC CARE** Deaths High risk: 34.4% increase, ns General population: 5.5% increase, ns	3 months Estimated effect EE: mean change in practice rates between the last period before intervention and last period during intervention **High risk** Emergency admissions 16.5% increase; ns Emergency bed days 19.0% increase; ns **General population** Emergency admissions 2.5% increase; ns Emergency bed days -4.9%, decrease; ns	**Qualitative data** Data from 231 interviews with patients (72), carers (52) and other key informants (United health Europe, USA, IP teams). Content analysis of documents and observation of meetings: • No wider local re-engineering of primary and secondary care for older people. • Central funding gave the Evercare sites greater external managerial, information management, support than the other sites • Reports of admissions avoidance (mismatch with quantitative findings) • CM access added a frequency of contact, regular monitoring, knowledge of referrals, not provided by primary care • CMs patients, carers reported improved QoL (better communication, psycho-social support), reduced GP workload.	CM provided additional range of services into primary care and increased case finding without an associated reduction in hospital admissions. CM was highly valued by patients and their carers, but there were few major differences in outcomes between Evercare and other models. Community matron approach needs a radical system redesign to make it effective

			- CM highly acceptable to key stakeholders, especially patients and carers (both models) CM appeared to be more effective due to varied and sufficient community based services/resources; effective liaison with hospital ward staff; minimizing advanced PNs managerial workload.	

Data for longest follow up; IG Intervention Group, CG Control Group, RR Relative risk; OR Odds Ratio; CI Confidence Interval; MD Mean difference ; ns Non significant, p< 0.05 significant; SIPA System of Integrated care for older people, ADL Activities of daily living; IADL: Instrumental ADL, CM Case management, ED Emergency department; OP Outpatient, NH Nursing home, Qol Quality of life

Table 5 Collaboration Model: Outcomes

RANDOMISED CONTROLLED TRIALS

Study ID/Country (Quality - low, + medium ++ good)	**Effectiveness on health, function & quality of life outcomes**	**Effectiveness on resource use**	**Processes of care**	**Evidence summary**
Garasen 2008 Norway (+) (Garasen 2007 shorter follow up)	**ACUTE CARE:** Intermediate care (IC) in community hospital 12 months: no significant differences between IC group and IG; results shown between IG and CG (did not aim to evaluate health/function) Deaths (decreased): RR 0.57(95% CI 0.31, 1.04), adjusted p= 0.03 Survival (days) IG 335.7 (95% CI 312.0-359.4) IC 335.2 (95% CI 309.8-360.5), p<0.02 CG 292.8 (95%CI 264.1-321.5)	Hospital admissions: No difference No days in hospital: No difference Need for NH care: No difference Need for home care: No difference Days at risk: IG 335.7 (95% CI 312.0-359.4), CG 292.8 (264.1-321.5),adjusted p=0.01 *At shorter follow-up 26 weeks:* Readmissions: IG19.4% CG 35.7%, p=0.03 Long term NH admissions: ns increase Independent of community care IG 25% CG10.0%, p=0.02.	None reported	IC at community hospital is equal alternative to prolonged hospital care, with no effect on need for long term primary level care or hospital use. Fewer were in need of community care services and significantly fewer died. Readmissions reduced significantly at 26 weeks
McInnes 1999 Australia (+) Ranmuthgala 1997	**ACUTE CARE: GP input in Discharge Planning** No health outcomes reported	26 weeks post discharge Length of stay, days to first admission, readmission to hospital: No difference Service use: 52% received GP visit Support services : No difference (ns increase) Recommendation for support services (increased) OR 1.63 (95% CI 1.05-2.54; p=.03) (due to home nursing) Community nursing (increased): OR 2.10 (95% CI 1.29-3.41), p=0.002 Supported accommodation, meals on wheels, home care: No difference Costs: None	Patient satisfaction: RR 1.28 (95% CI 1.14, 1.44) Return home well prepared :RR 1.14 (95% CI 1.05,1.24) Discussion of discharge plan:OR 5.01 (95% CI 2.28,11.00), p < 0.0001 80% IG receiving a pre-discharge visit report found it useful. *GP survey:* 71% would undertake discharge visits with remuneration; 53% complied with request to make remunerated visit; GPs less likely to make visit if only practitioner and if patients more dependent or from NH	Intervention patients were significantly more likely to be recommended for community services, be satisfied and receive enhanced quality of care through better hospital-GP collaboration.
Naylor 1999, 1994 USA (-)	**ACUTE CARE: Comprehensive discharge planning & follow up home care** 24 weeks Functional status (Enforced social dependency scale): No difference Depression (Centre for epidemiological studies depression scale): No effect Deaths: No difference	%readmitted at least once (decreased): RR 0.55 (95% CI 0.39, 0.78), p<0.001 Multiple readmissions (decreased): RR 0.43 (95% CI 0.22, 0.84), p<0.01 Time to first readmission longer in IG p <.001 Visits: Acute care, physicians, ER, home: No difference *Cost:* Total and per patient: CG >2x compared with IG, p<0.001 Savings for Medicare at 6 m: Cost/ patient IG $3630 CG $6661, p<0.001 (re-	Patient satisfaction: No difference IG received at least 1 nurse visit	Intervention showed no significant effect on functional status. It reduced readmissions, lengthened the time between discharge and readmission and decreased the costs of providing healthcare

		hospitalisations) Total readmissions: IG $427217, CG $1024218, p<0.001 * cost values were standardized for unequal follow-up by converting to costs per week in the study		
Battersby 2005,2007 Harvey 2001 Kalucy 2000 Australia (-)	**CHRONIC CARE** South Australia (SA) Health Plus projects (data for non disease specific) (19-27 months from enrolment) Short form survey (SF)-36: *Eyre*: Physical function MD 4.17 (95% CI 0.76, 7.59) (improved) Physical component summary (PCS role) MD 2.14 (95% CI 0.44, 3.84 (improved) *Southern*: PCS MD 2.56 (95% CI 0.49, 4.63) (improved) SF36, WSAS (disability) over time: *Eyre*: , p< 0.05 *Southern* :p<0.05 (WSAS no difference) Deaths: No difference	*Eyre:* • Fewer admissions in IG were accounted for by an increase in emergency admissions • >=3 hospital admissions in the previous two years predicted admissions • 33 % likelihood of unplanned admissions per year. • IG increased screening tests. • Domiciliary/community: IG used more services due to improved access. •IG showed net deficit compared to CG (decreased in high risk) •Coordination & extra community services costs •Trial did not achieve cost neutrality.	*Qualitative data from patients and professionals (service coordinators (SCs, GPs): (Kalucy 2000)* •40 - 60% achieved sett goals • Structured care plans improved patient's chance of receiving a service *Extent of benefit*: Services were well coordinated, those not accessing care or were at risk of hospital admissions improved most *Effects of care planning:* IG received services according to care plans by GPs, (e.g more screening), adherence depended on timely involvement of GPs, patients, service providers, SCs *Self-management*: Flinders model of support, delivered patient-centred care. Self management capacity incorporated into care planning. Model used to train clinicians across Australia. *Barriers to coordinated care:* Multiple sources of funding, GP focusing on acute care, with *doctors working individually, not in teams (fragmentation)*, care should be based on patient's self-management capacity, not just severity *Facilitators:* Patient-centred approach, service coordination in partnership with GPs	SA model improved physical function, access, lowered hospital admissions, but Trial did not achieve cost neutrality. Potential gains in outcomes & costs could be achieved in longer term. Patient centred care and service coordination in partnership with GPs were important
Chew- Graham 2007 UK (-) Burroughs 2006 (Qualitative)	**CHRONIC CARE: Collaborative care model for depression** 16 months Health assessment questionnaire: Disability: No difference Pain: No difference *Depression:* SCID >=5 (*Structured Clinical Interview for DSM-IV (Diagnostic Statistical Manual for Mental Disorders)* Adjusted (decreased) OR 0.38 (95% CI 0.15, 0.97), p=0.04 HSCL-20 (Hopkins symptom checklist):		*Qualitative:* • Patients reported difficulty in engaging with the intervention • Dissonance between prior expectations of treatment and their experience; • •Depression not viewed as a legitimate illness to be taken to GP • Patients valued contact with empathic and caring person(s) *PCPrs:* Therapeutic nihilism, managing late life depression in their remit, but limitations in own skills, lack of resources for referral.	Collaborative care for older people with depression in primary care, using a facilitated self help intervention is effective and acceptable to patients, but economic evaluation is required. Therapists' skills for such a model need to be defined.

	No difference Deaths: No difference			
Ollonqvist 2008, 2007, Hinkka 2006, 2007 Finland (++)	**CHRONIC CARE: Network rehabilitation** 12 months Functional independence measure: No difference MMSE decreased IG-0.4, CG-0.9, p=0.05 (borderline) ADL/ IADL: No difference overall Mean increase IADL: IG 0.87 (0.55, 1.99), p<0.0001; CG 0.60 (0.28-0.91), p=0.0003 Subjective health (improved) RR1.94 (95% CI 1.06, 3.55) Deaths: No difference	Institutionalised: No difference Support services: 1.7 fold increase IG compared with CG (p=0.05) (borderline) RR 1.41 (95% CI1.00, 1.96) (due to increase use of transport services) Help from relatives: No difference Municipal services: No difference; IG increased 1.3 fold,(due to transport services) Private home help: No difference CG: Relatives help at follow up declined significantly in oldest (85+) age group. Costs: None	• 93% IG very satisfied / satisfied • Subjective health improved (p=0.04) in IG, decreased in CG (p=0.02 • Half of recommendations implemented within 6 months •Public home help not accessed . *Qualitative data:* (Ollonqvist 2007) *Key workers experience of the model:* • Participated in cooperation in addition to normal work • Networks able to establish stable multisite rehabilitation network-cooperation between 3 agencies •Successful organisational structure was low (small towns) • 'Creators' had experience, enthusiasm, joint working, ability to advance, meet • 'Followers' had difficulties with the process of interagency working	Network rehabilitation improved subjective health, increased use of municipal services, received additional help as ability to manage with daily activities decreased. In Finland, family care aims to complement fomal services (health, and social). Longer follow-up required to delay long term admissions
Llewellyn-Jones 1999 Australia (-)	**CHRONIC CARE:** Multifaceted shared care for late life depression 9.5 months Depression (GDS): Significantly more movement to less depressed + X^2 6.37, p=0.012 (MH test for trend) Mean change score: (improved): MD -0.96 (95% CI -0.15, 2.06), ns,p=0.09 (Multiple linear regression, p<0.0001, 50% of variance in GDS scores) Regression coefficient CG vs. IG -1.87(-2.97, -0.76); Standardised regression coefficient -0.22, p=0.0011 *Other* : No of depressogenic drugs: No difference Likely to take more anti-depressants: OR 3.1 (95% CI 0.9,10.2, p=0.066			Depression among elderly people in residential care can be improved by multidisciplinary collaboration, enhancing clinical skills of GPs &care staff.

Byles 2004 Australia (-) (Byles 2002 Qualitative)	**PREVENTIVE CARE:** Home based assessment 3 years QoL SF-36 PCS, adjusted MD 0.90 (0.05,1.76), p=0.04 (improved) Mental health component summary (MCS) adjusted MD 1.36 (0.40, 2.32), p<0.05 (improved) MCS: trend in favour of groups which received 6 monthly visits, adjusted MD 2.3, p<0.01 Logistic regression (median scores): PCS OR 1.38, p=0.0009 (improved) General Health OR 1.48, p=0.001 (improved) Mental function OR1.24, p=0.07 (improved) Deaths: No difference	Hospital admissions in previous year: No difference NH admissions (adverse) RR 2.85 (95% CI 1.26, 6.45); Estimated average cost per visit $116	*Qualitative data: Allied health professionals (HP)* • HPs positive about delivering intervention, role clarity emerged, confidence with their skills. • comfortable reporting to GPs, who were satisfied with HPs' role *Acceptability to clients*: described participants as 'opening up to them'; one SW identified more previously unreported depression. *Collaboration with GPs*: Participants' feedback indicated a favourable response towards visits *Benefits:* HPs felt patients need to be seen in their homes; Key concerns: home safety, checking vaccination status, dental health, hearing, abbreviated MMSE seen to be unreliable	Home assessment may improve QoL in the final years of intervention, for groups receiving frequent visits. Assessments may increase the probability of NH placements. May not be considered cost effective unless targeted to specific groups.
Hendriks 2008a, b, 2005 Netherlands (+)	**PREVENTIVE CARE:** Falls prevention 12 months Primary: Injurious fall: No difference >1 fall: No difference Secondary: Poor perceived health (RAND SF-36 item) adjusted OR 2.14 (0.96,4.78), p=0.06 (borderline), unadjusted ns Mental health (HAD): No difference ADL & IADL (Groningen Activity restriction scale) : No difference QoL (Euroqol): No difference Deaths: No difference (small numbers)	Costs: No.of people with a fall during follow up. QALYs from EQ-SD (Hendriks 2008b) •Overall mean total costs higher (IG €4991 CG 4857) •No significant differences between groups in any cost category •27% of incremental cost effectiveness ratios suggests that intervention could be more effective at lower cost than control. • No significant differences on cost effectiveness ratios, costs and effects •Healthcare utilisation in both groups comparable	• 89% had a referral/ recommendation •72% medical/ OT assessments •OTs received 456 recommendations •Only half asked GPs about referrals/recommendations • 25% did not receive referrals intended •75% reported adherence to referrals from GPs /OTs *Possible reasons for lack of effect:* •Discrepancy between recommendations and implementation • Lag between fall and intervention • Extended implementation period of 3.5 months due to GP involvement	Evidence of no significant differences in costs or outcomes. Results do not corroborate other multifunctional falls interventions. Implementation research assessing feasibility and barriers to adherence is required.
Hogan 2001 Canada (++)	**PREVENTIVE CARE:** Falls prevention 12 months Cumulative no. of falls: No difference No. >=1 or >3 falls: No difference Mean no. of falls/subject: No difference Time between falls, increased, p<0.001 (due to improvement in sub group with > 2 falls at baseline) Deaths: No difference	Service use: (secondary) Hospital admissions: No difference Fall related ED visits: No difference Costs: None	• 81.1% adherence to recommendations •mean risk factors per subject 5.71 (2.4) mean recommendations per subject 4.7 (2.4).	Intervention did not have significant effect on falls or health care use.
Reuben 1999 USA (++)	**PREVENTIVE CARE:** Outpatient CGA	Bed days: No difference *Estimated Differences in Utilization and Restricted Days From*	• Patient satisfaction: No difference •96% received the CGA & adherence interventions	Intervention can prevent functional and health-related

Keeler 1999 (cost effectiveness)	15 months Change score: SF-36 Physical function MD 4.69 (95% CI .63, 8.75) p=0.02 (improved) Restricted activity (no of restricted activity days), MD -2.84 (95% CI -0.75, 4.93) p=0.006 (less) Physical heath MD 1.99 (95% CI0.07, 3.91), p=0.04 (improved) Mental health: No difference General health: No difference Deaths: No difference	*Treatment:* IG-CG: Psychology, Physiotherapy visits p=0.01 • Intervention costs approx $273 • Utilisation: $37 for first 32 weeks; $47 for second 32 weeks; $73 for 5 years (in excess of CG costs). •Intervention reduced decline in physical function by 4.69 units, 64 week cost/unit of improvement are ($273 +184)/4.69 = $97/unit. •*Total cost per QALY: $10, 600(5 years);Over 64 weeks follow-up*, C/QALY = $26, 500. • Costs/effects estimations are imprecise, results sensitive to changes in key variables	•PCPrs implemented 59% of physician-initiated CGA recommendations within 3 months. •Patient adherence during follow up: 67% of physician-initiated recommendations, 61% of all self-care recommendations	QoL decline, with cost effectiveness comparing favourably with other medical interventions.

NON RANDOMISED STUDIES: Collaboration model

Study ID/Country	Effectiveness on health, function & quality of life outcomes	Effectiveness on resource use	Processes of care	Evidence summary
Brown 2003 UK	**CHRONIC CARE (and preventive)** After referral, 9,18 months Functional ability: Barthel Index(BI) Majority highly independent in both groups Severe/total dependency 2% No group difference Mental function (Abbreviated mental test AMT): No difference Depression: Geriatric depression scale (GDS) IG:70% CG 50%: Chi squared 7.316, p=0.007 18 months; no difference QoL: Philadelphia Geriatric Center Morale Scale (PGCMS).small numbers Increased over time only in IG group, t=2.389, p=0.018 Deaths IG 18.5%,CG 24.7% RR 0.75 (95% CI 0.51.1.09), ns	Residential care IG 10.2%, CG 6.6%, ns Living at home IG 65.6%, CG 62.1%, ns	Faster speed of response between referral & assessment in IG: T=-2.076, p=0.039 Previous contact by nurse or Social services department: No difference Referral: IG more likely to have been self-referred or referred by their family than those in the traditional group (Chi square 8.08, p=0.04) Semi- structured interviews: Main themes relate to organisation of services reported by service users: • Strong bonds between themselves and home care workers • Dissatisfaction with means testing • Generally positive and satisfied about service received although access for the first time was a problem • Eligibility for support; extent of loneliness felt by older people.	Integrated health and social care teams did not result in a greater proportion of older people remaining living independently in the community, with no effect on health/functional outcomes. Patients from the integrated team may self refer more and are assessed more quickly.
Davey 2005 UK	**CHRONIC CARE** 6 months Deaths: 13%, no difference	Baseline: 33% area1 (co-location) 56% area 2 had low MMSE scores, p=0.06 Service use: (GP, hospital, CN, SW, home care, meals, day care, respite), ns Living at home: Overall 69%; no group difference. Predictors included high MMSE scores, increased hours of home help, living with others. Area/co-location had no effect	Contacts by SWs: Older perons/carers: per client/year Area 1 (co-location) vs Area 2; MD -8.5 (95% CI -15.4,-1.6) (significantly less) CNs: Area 1 (co-location) vs Area 2; MD – 2.7 (95% CI -5.4,-0.003) (less); area 1: more face to face; area 2: prearranged meetings Mean contact time: Area 2 greater than area 1 (123 vs 82 mins)	Co-location does not necessarily lead to substantially closer interprofessional working in terms of greater contact between social workers and GPs or social workers and community nurses. Contact with social care appears to be under documented. Effectiveness of collaboration needs to

		In long term care: 18%, no difference	Usefulness of CN contacts: 90% rated useful; 33% contacts influenced SW's care management plans. GPs: ns;more informal face to face contact in area 1 Mean contact time: Area 1 greater than area 2 (29 vs 12 mins) Co-location may affect mode of communication between IPs, increasing face to face. Usefulness of contacts between GPs and SWs: identified helpful and unhelpful areas of contacts; 25% influenced the SW's care plan e.g. decision about placement in residential care	consider the wider context of the characteristics and services received by older people.
Kane 2006 USA	**CHRONIC CARE** 12 months data from enrolment Deaths: No difference	Use of hospital services: No difference between IG (Wisconsin Partnership Program (WPP)) and CGs Rate of hospital admissions: No difference ED Visits, preventable hospitalisations, risk of NH admissions: No difference	Contacts by physicians and nurses: IG – WPP received more face to face visits than CGs, (1019 contacts/month vs 820), p<0.001 IG – WPP 52% had a face to face visit CG – 41% (or 0.58,p<0.001)	WPP did not alter the pattern of care. The authors suggest the weak effect may be attributable to the small numbers of WPP cases per participating physician, and therefore may not have had the opportunity to influence the way care was managed

Data for longest follow up;IG Intervention Group, CG Control Group, RR Relative risk; OR Odds Ratio; CI Confidence Interval; MD Mean difference (SMD Standardised MD); ns Not significant, p<0.05 significant; ADL Activities of daily living,IADL: Instrumental ADL, CM Case management, CGA Comprehensive Geriatric assessment;GP General Practitioner; ED Emergency department; OP Outpatient, NH Nursing home, MMSE Mini mental score examination;Qol Quality of life, PCPr Primary care professionals; GDS Geriatric depression scale; HAD Hospital anxiety & depression

Table 6 Integrated Team Model: Outcomes

RANDOMISED CONTROLLED TRIALS

Study ID/Country (Quality - low, + medium ++ good)	**Effectiveness on health, function & quality of life outcomes**	**Effectiveness on resource use**	**Processes of care**	**Evidence summary**
Cunliffe 2004 UK (+)	**ACUTE CARE:** Early Discharge & Rehabilitation Service (EDRS) 12 months ADL (Barthel Index BI): No difference 3 months (improved) MD 1.2, (95% CI 0.4-1.9) Nottingham Extended ADL : No difference EADL domestic (improved), MD1.4 (95% CI 0.4,2.4) QoL: Euroqol: No difference GHQ patient (improved) MD -1.9 (95% CI -3.50, -0.40), 3 months MD -2.4 95% CI -4.1, -0.7) GHQ carer: No difference (3 months improved MD -2.0 95% CI -3.8,-0.1) Deaths: No difference	Residential status, institution/hospital: No difference Hospital readmissions: No difference NH/residential care readmissions: No difference Length of stay (LOS), median difference: 4 (95% CI 3-7) (decrease IG) Hospital bed days (median difference) 4 (95% CI 1-9) (decrease IG) No. attending geriatric day hospital (decreased) RR = 0.47 (95% CI 0.23-0.56) No. receiving social services : No difference Costs: None	*Qualitative data* • 76% EDRS received services; high satisfaction in both groups • *EDRS* felt to be patient centred, clear goals, team working *EDRS vs. hospital/community services:* • Lonely at home but glad not in institution, • Process of care appreciated. • *EDRS patients* reported caring staff, positive communication, frequent visits, recognised staff expertise, attention to detail, timely provision of care needed *Staff:* reported good EDRS organisation and operation, 'whole person' approach	Older people can be discharged sooner with better health outcomes, using a well-staffed and organised patient centred service Shorter LOS is not offset by more/longer readmissions to hospital or NH. EDRS is less likely to have OP or day hospital rehabilitation
Hughes 2000 USA (-) Multi centre	**ACUTE & PALLIATIVE CARE:** Discharge & home base primary care (Veterans affairs) 12 months: Terminal (TG), Non terminal (NTG) groups, Treatment effect coefficients (TEC, SE) BI: No difference QoL(SF-36) : Physical function: No difference Mental health: Improved TG, TEC 3.0(2.7), p=0.008, NTG: No difference General health: Improved, TG, TEC 0.9 (2.8), p=0.03 NTG: No difference PCS & MCS: No difference *Bodily pain : improved(TG , NTG: Favoured CG* *Care giver:* Caregiver burden: (objective) Improved NTG, TEC	Hospital readmissions: No difference Number of readmissionsn1-6 months: IG 11% reduction, MD -0.1 (95% CI -0.21, 0.01), P=0.06 (borderline), due to improvement in NTG 12 months: ns NTG severely disabled: (reduction) MD -0.2 (95% CI -0.30, -0.10), p=0.03 12 months: ns *Service use:* LOS (Home care) IG 5.6m CG: 5.9% used hospice care, with a mean LOS 48.5 days; 49% used private home care but did not report same benefit as IG *Costs:* IG: 12.8x >CG MD $+3334, p=0.02; NH: MD$ +416, p=0.02 Difference of $3000 approximately equal to intervention cost , plus $282 (approx)/patient/month	Patient satisfaction: TG: No difference NTG : Improved: Access TEC 5.3 (1.1), p<0.001 Communication TEC 8.5 (1.4), p=0.005 Technical quality p<0.001 Interpersonal p=0.001 Outcomes p=0.02 Personal satisfaction: No difference Care giver satisfaction: Improved on all domains in TG and NTG 58% IG discharged within 6 months	Intervention improved st QoL in terminally ill patients, satisfaction among non–terminally ill, improved caregiver QoL, satisfaction with care & caregiver burden. It reduced hospital readmissions but did not substitute for other forms of care. Higher costs should be weighed against the benefits

	-0.7(0.3), p=0.008; TG : No difference QoL: Physical function, mental health improved in TG & NTG PCS & MCS: improved NTG Deaths: No difference	Total VA costs: IG18.1% > CG, p<0.001; Non VA/private costs: IG 9% lower than CG Sensitivity analyses did not alter findings. *Costs of professionals' visits & physicians 24.3 hours per month not known*		
Melin 1993 (-) Sweden	**ACUTE CARE**: Discharge planning & care 6 months Personal ADL (Katz): No difference IADL (improved) MD: IG 4.90, CG 3.20, p=0.04 MMSE ; No difference	Hospital readmissions: No difference Increased CG patients in hospital, p=0.03 Mean days in- patient, long term care (decreased) MD -33, 95% CI -49.2, -16.8, p< 0.001 Total service use (visits) adjusted means IG 336.4, CG 193.6, p=0.001 (increased) Social care (hours) home aides IG 179.2 CG 131, P=0.01 (increased) OP visits, day care, informal care givers: No difference *Costs:* Comparative (no cost effectiveness ratios) Total costs/patient (000 swedish crown, 1989 price level) Long term IG 2521/23 CG IG 5130/70, p<0.001 (reduced) OP IG 3884/35 CG 1685/23 (reduced), p=0.001 Other (medication,transport, informal care) IG 443/4 CG 242/3 (increased) p=0.01 *Total overall costs: No difference*	No. medical diagnoses (improved) IG -0.50 CG 0.40, p<0.001 No. of drugs (reduced) IG 0.00, CG 0.40, p=0.05 Perception of functions/care: No difference	Improved IADL, medical diagnosis, used less inpatient care and more OP care, with no overall cost differences. Intervention team & community care costs higher, but offset by lower long term care costs No cost-effectiveness analysis reported
Nikolaus 1995, 1999, 2003 (-) Germany	**ACUTE & PREVENTIVE CARE:** Post discharge & falls prevention at home 12 months ADL: No difference IADL (improved) MD 1.3 (data not given) Dependency ADL : No difference Dependent on IADL: No difference (IG vs. CG) IG vs.assessment only, (improved) RR 0.5 (95% CI 0.3, 0.9) p <0.05 Falls (decreased) IG 163 CG 204; IRR 0.69 (95% CI 0.51-0.97) Frequent fallers: No difference Fall related injuries: No difference Fallers with >=2 falls (decreased) IRR 0.63 (95% CI 0.43, 0.94) Self perceived health (improved)	NH admissions (new): No difference Hospital readmissions: No difference LOS (less), Mean & range IG 33.5 (30.4-36.5); CG 42.7 (39.8-45.6), p<0.05 Community services: IG>CG Long term care admissions(new); No difference Discharge destination Long term care (less) RR 0.02 (95% CI 0.01, 0.04); Private home: >90% all groups, ns Community (home) (increased) RR 1.29 (95% CI 1.01, 1.64), p<0.05 *Costs:* Average net saving DM 7000 (US$ 4000)/ subject. Staff/ community services costs offset by fewer days in hospital & NH *Survivors* LOS hospital (Mean & range) (less) IG 22.2 (18.0-26.4), CG 35.7 (31.1-40.4), p<0.05	Home team recommended 222 home modifications to 137 homes Compliance > 60%	CGA plus home intervention improves function, lowered LOS with no effect on hospital or NH admissions It increased use of community services. It can delay permanent NH placement, may reduce direct costs of hospital and NH patients resulting in net savings Good compliance to recommendations may prevent falls.

	MD 0.7 $p<0.05$ Life satisfaction (improved) MD 0.7, $p<0.05$ Deaths: No difference	Hospital re-admissions: No difference No. of days(less) IG 1652 ,CG 2566, $p<0.05$ (Long term care (less) IG 2458, CG 5065 $p<0.05$ Physician visits: No difference		
Weinberger 1996 USA (-) Multicentre	**ACUTE CARE**: Discharge planning & post discharge care (VA) QoL SF-36: No difference	No of readmissions (increased), $p=0.005$ Days of hospitalisation (increased), $p=0.041$ Distribution of data non-normal (Wilcoxon rank used)	Patient satisfaction high, $p<0.001$ •Greatest difference for patients' perceptions of the continuity of their care (33%) •Nonfinancial barriers to access medical care (16%). •Overall compliance to intervention 89.0%	The intervention increased rather than decreased rate of rehospitalisation but patients in intervention group were more satisfied with their care
Banerjee 1996 UK (++)	**CHRONIC CARE:** Psychogeriatric home care 6 months Improved depression (AGECAT) RR 1.73 (95% CI 1.18, 2.54) Recovered from depression RR 2.30 (95% CI 1.22, 4.35), adjusted OR depression 9.0 (95% CI 2.0,41.5) Mean depression (MADRS) (improved) MD in score -7 (95% CI -10,-3) Deaths: No difference	One extra doctor as key worker for each member of IG; no cost data	IG : *Treatment, % proposed by team vs. % completed:* •Started 79 vs. 78 • Physical review 76 vs. 91 • Social measures 69 vs. 75 • Counselling/psychotherapy 59 vs. 88 •Family work 34 vs. 80 •Outreach referral 24 vs. 43 • ADL assessment 21 vs. 100	Psychogeriatric home care is more effective for depression than GP alone, in disabled, socially isolated elderly people living at home
Bernabei 1998 Italy (-)	**CHRONIC CARE:** Integrated care & CM 12 months Function: (significantly less deterioration in IG +5.1%CG. -13.0% ADL (improved), MD -0.6 (95% CI -0.88, -0.32), $p<0.001$ (adjusted) IADL (improved) MD -0.3 (95% CI -0.58,-0.02), $p<0.05$ Mental status (short portable) (improved) IG -3.8% CG. -9.4% MD -0.6 (-1.16,-0.05), $p<0.05$ Depression (GDS) (improved) IG -4.0% CG. -11.8%, MD -1.9 (95% CI -3.29, -0.51), $p<0.05$ No of medications +(reduced), MD -0.7 (95% CI -0.77, -0.63) Deaths: No difference	NH admissions: No difference Hospital admissions (decreased) RR 0.74 (95% CI 0.56 to 0.97), $p<0.05$ NH or hospital (decreased) RR 0.69 (95% CI 0.53 to 0.91), $p<0.01$ ER+ (decreased) RR 0.64 (95% CI0.48 to 0.85), $p<0.025$ *Service use:* IG: No increased use of health services in IG (less than CG) GP home visits (less) MD -2.9 (95% CI -3.2, -2.6), $p=0.04$ *Costs:* •19% decrease in community health service costs • 48% decrease in NH costs •34% decrease in hospital expenses Total per capita health care costs 23% lower in IG Overall savings= £1125 /person/year due to reduced service costs (excluded informal care costs)		Integrated care and CM may provide a cost effective approach to reduce admissions to institutions and functional decline in older people living in the community without increases in use of health services and with overall savings attributed to decreases in hospital and NH expenses

Montgomery 2003 Canada (-)	**CHRONIC CARE**: Home CM with access 3 months MMSE (improved) from baseline to follow up mean scores 1.3, t 3.75,p=0.0001 ADL & EADL: No difference (data only for IG) *Other:* Mean no. of prescriptions (IG 4.3, CG 2.6) & OTC medication (IG 2.3 CG 0.7) p<0.0001 (increase) Care giver burden: No difference Deaths: No difference	NH admissions (designated) (decreased) RR 0.39, (95% CI 0.17, 0.89) Geriatric day hospital attendance (increased) RR 2.64 (95% CI 1.60, 4.45) Waiting time(days) less, IG 9 CG 38, p = .006. ER/hospital services: No difference . Days in hospital (less) IG 388 CG 927 <30 days (shorter) IG 4/18 CG 9/18, p=0.03 Total hours home care service IG 8.5 CG 6.1, p=0.02 (increase) *Costs:* None	Care givers Family satisfaction (increased) • Promptness of service; MD 0.6 (IG 4.21,CG 3.63, t=2.11, p=0.02) • Assessment & deployment of services (faster); Mean days: IG 2.2 CG 12.1, p<.0001	Patients in the integrated programme received *significantly* faster assessment & deployment of home services, greater access to day hospital, prompt attention to referrals and had reduced need for long term care and reduced LOS
Sommers 2000 USA (-) Cluster randomised	**CHRONIC CARE**: Senior care connection (SCC) 24 months (between year 1 and 3) *Effect of nurse & social worker contacts* Mean change score, *ADL/IADL* (low score =improved) trend (low, medium, high contacts) No contacts 0.09, low <21 0.10, medium 22-38 0.01, high >38 -0.03, p=0.005 (trend, ANCOVA) SF 36 self rated health: No difference Trend for improved health in second year Depression (GDS): No difference *Other:* Medication: No difference Symptom scale: No difference Deaths: No difference	Hospital admissions rate/year (12-24 months) IG 0.38-0.36 , CG increased 0.34-0.52, p=0.03, 24 months (decreased) RR 0.73 (95% CI 0.58, 0.92); (12 months , ns) *Effect of nurse & social worker contacts* *Hospital admissions (decreased)* No contacts 0.17, low <21 0.07, medium 22-38 0.05, high >38 -0.18, p=0.02 (trend, ANCOVA) *Physicians visits (decreased)* ,No contacts 0.88, low <21 -0.86, medium 22-38 -1.05, high >38 -2.8, p=0.003 (trend, ANCOVA) Service use: Year 1: No difference; Year 2: IG less hospital admissions, readmissions, office visits. Hospital admissions (/patient/ yr) (decreased) MD IG -0.02, CG 0.18, p=0.03 Re-admissions (decreased) MD -2.0, CG 5.4, p=0.03 *Visits:* Office (decreased), MD -1.5, CG 0.5, p=0.003; Physician (decreased) MD IG -0.5, CG 0.4, p=0.003 *Costs* Year 2: Total savings £ 258, 934 (no difference in hospital LOS, but CG had more admissions). *Net per patient savings $ 90*, (excludes savings from fewer physician visits	Interviews & patient satisfaction questionnaire: • Initial 12 months spent in developing trusting relationship with team. • Usefulness of SCC mean score 4/5 Other: • Nurse/social worker at least 1 contact with 85% of IG • average 14 months of the SCC/patient • Patients averaged 34 nurse or social worker contacts .	Team-patient relationship showed potential for less utilisation whilst improving health, with overall net savings. Dose response between health service utilisation, patient health status and number of contacts It is not clear whether those at 'higher risk' for admissions had more contacts, thereby having fewer admissions
Brumley 2007, 2003) USA (+ +)	**PALLIATIVE CARE** (Kaiser Permanente): Home based	90 days	Satisfaction (Reid Gundlach) (improved) OR 3.37 (95% CI 0.65, 4.96), p=0.03, RR 1.15 (95% CI	In-home palliative care significantly increased patient

	 Deaths (no comparison data, overall 75%);	*Reduced:* Hospital days by 4.36, p<0.001 ER visits by 0.35, p=0.02 Physician visits, MD -5.8, p=0.001 Hospital visits, MD -7.0, p<0.001 ED visits -1.37, p<0.001 Skilled nursing visits , -3.7, p=0.005 Total home health visits (increased) MD 21.8, p<0.001 *Costs:* IG was 33 % less than CG, p =.03 Mean cost patients $12670 +/- $12523, CG $20,222 +/- $30, 026 (less) Average cost/patient/day IG $95.30 CG $ 212.80,p=.02 Medical costs reduced by 45% (Brumley 2003)	1.05, 0.26) Number of days in the study: IG 196 days, CG 242 days, p<0.05 **Site of death** (home) (increased) Adjusted OR 2.20 (95% CI 1.3, 3.7), p<0.001; RR 1.38 (95% CI 1.15,1.67)	satisfaction while reducing use of medical services and costs of medical care at the end of life. Intervention patients were more likely to die at home, and less likely to visit the ED or be admitted to hospital.
Hughes 2000 *USA (-)* *Multi centre*	*Delivered acute & palliative care - See acute care above*	*Delivered acute & palliative care - See acute care above*	*Delivered acute & palliative care - See acute care above*	*See acute care above*
Counsell 2007 USA (+)	**PREVENTIVE CARE:** Home based Geriatric Resource Assessment & Care for elders (GRACE) 24 months ADL/IADL (AHEAD: No difference QoL (SF36) Physical function: No difference General health (improved) MD 2.5 (95% CI 0.06, 4.90) p=0.045 (borderline) Mental health (improved) MD 3.9 (95% CI 1.57, 6.23), Cohen's d 0.21, p=0.001 MCS (Improved), MD 2.4 (95% CI 1.06, 3.74), p<0.001 PCS: No difference Death: No difference	Hospital admissions/readmissions/stays: No difference ED visits (decreased), IG 1445, CG 1748, p=0.03, *High risk of hospitalisation (baselines)* Year 2: Hospital admissions (decreased) IG 396 , G 705; p = .03, Hospital days (No difference) ED visits (decreased) IG 848, CG 1314, p=0.03 Costs: None	*Quality of medical care 12 months* Geriatric conditions New diagnosis of difficulty walking or falls(improved) RR 4.08 (95% CI 1.88, 8.90), p<0.001 Urinary incontinence (improved) RR 3.13 (95% CI 2.26, 4.34), p<0.001 Depression (improved) (PHQ-9 score>=10) , RR 3.75 (95% CI 2.15, 6.55), p<0.001 New antidepressants prescribed (improved) RR 3.23 (95% CI 1.52, 6.87), p<0.001 General health care Preventive care (improved) RR 1.23 (95% CI 1.11, 1.35), p<0.01 Continuity of care (improved), RR 1.44 (95% CI 1.23, 1.68), p<0.001 Medication use (improved) RR 1.52 (95% CI 1.27, 1.82), p<0.001 End of life care (improved) RR 2.60 (95% CI 2.01. 3.37), p<0.001	GRACE improved quality of care, and reduced acute care utilization among a high-risk group. Improvements in health-related QoL were mixed, with reduced ER visits. No conclusions on whether reductions in acute care utilization will offset program costs
Nikolaus 1995, 1999, 2003 (-) Germany	**Delivered acute care & preventive care by a home intervention team** *See acute care above*	*See acute care above*	*See acute care above*	*See acute care above*
Boult 2001 (-) 1998,1994 Morishita 1998)	**PREVENTIVE CARE:** GEM Outpatient 18 months	Self reported use of home health care (less) (adjusted OR 0.60, 95% CI 0.37-.0.98). GEM used less. IG: lower ER visits, NH use.	*Process: 6 months* (• Patient satisfaction with overall care high (PSQ-	GEM is significantly less likely to lose functional ability, experience health related

USA	Functional ability Physical functioning dimension (PFD) (improved) MD -3.2 (95% CI-6.11,-0.29) Bed disability days (decline in functional ability) (less) MD -0.90 (95% CI -1.59,-0.21) Restricted activity days (decline in functional ability): No difference Patients lost functional ability (less) RR 0.76 (95% CI 0.63, 0.91) Patients with increased restricted activity days (less) RR 0.61 (95% CI 0.43,0.87) Patients with increased bed disability days: No difference Depression GDS (improved) RR 0.48, (95% CI 0.31.0.76), *Adjusted OR 0.43, 95% CI 0.20-0.94* Deaths: No difference	Total Costs: Mean IG $11354, CG 11786 Medicare spent more on GEM in first 6 months, more CG months 7-18; £1350/person. No significant differences in Medicare payments for health service. Reliance on Medicare data means health services provided by other payers not covered, Total costs £1350/person	18,) , RR 2.11 (95% CI 1.58, 2.84), p<0.001 • IG independent and significant predictor of satisfaction). • High ratings - technical quality, interpersonal manner, communication, financial aspects, accessibility, time spent with physicians • GEM patients reported to have better understanding of health, made to feel better, making it easier to take medications. • Physicians rating high, would refer their patients to GEM if available. *Contacts:* Nurses 23.5/week Total staff time/week 216 mins *Referral* services used most frequently were physician consultations 44.9% for GEM	restrictions in their daily activities, possible depression, or use home healthcare services.
Burns 2000, 1995 USA (-)	**PREVENTIVE CARE**: GEM Outpatient 2 years Function (Katz): ADL/IADL: No difference IADL (over time) IG fewer impairments over time, IG 0, CG +1.4, p<0.017 Quality of life: General well being (RAND GWB) (improved) MD 4.7 (95% CI 0.03, 9.37), IG +12.0, CG +8.4, p<0.001 (over time) Cognition MMS E: No difference IG +1.5, C 0.0, P<0.001 (improved over time) Health perception (GHP) (improved), MD 1.0 (95% CI 0.22, 1.78) Life satisfaction (perceived global) (improved over time) IG + 1 CG -0.1, p= 0.037 Depression (CES-D); No difference at follow up At all time points (improved) (over time), IG -6.4; CG -5.5, p<0.001	Mean hospitalisations; No difference Service use: Year 1: No difference Year 2 CG 40% higher, p = .019; MD -5.0 (95% CI -9.46, -0.54 Costs: None		Primary care combining CGA and long term GEM may improve outcomes for targeted older adults. whilst reducing clinic visits, with no effect on hospitalisations

	Deaths: No difference			
Cohen 2002 USA (+) Schmader 2004	**PREVENTIVE CARE:** GEM Outpatient, 11 VA Medical centres 12 months Mean score change, QoL SF 36 Physical function: No difference Mental health (improved), IG 6.30, CG 0.80, $p=0.001$ General health (improved) IG -4.40, CG -8.20, $p=0.01$ *Secondary functional measures* ADL/IADL (Katz): No difference Deaths: No difference	Long term care, mean days: No difference Clinic visits; No difference Total costs (including VA: No difference	Schmader 2004, Retrospective data from Cohen 2002 All adverse drug reactions: No difference Serious (35% reduction) RR 0.65 (95% CI 0.45, 0.93) (adjusted) *Suboptimal prescribing* Medication: No difference Appropriateness: No difference No of conditions with omitted drugs (less) adjusted MD -0.3 (95% CI -0.5, -0.2), $p=0.0004$	GEM outpatient care had no significant effects on survival, improvements in mental health with no increase in costs. It reduces serious adverse drug reactions & suboptimal prescribing.
Englehardt 1996 USA (-) (Toseland 1996, 1997)	**PREVENTIVE CARE:** GEM Outpatient 24 months (8, 16 months where indicated) SF20 or FIM; No difference (no data); Psychological well being: Reported no difference (no data) Deaths: No difference Deaths in those reporting no pain, $p=0.051$ (borderline decrease)	16 months: Acute admissions: No differences (borderline significance) Days of care (increased)MD 3.4 (95% CI 3.2, 3.6), $p=0.00$ NH admissions: No difference ER visits (increased) MD 0.8 (95% CI 0.53, 1.07) Acute days of care decreased, ns Costs: Outpatient (MD -$918), $p=0.05$ (borderline) OP use (16-24 months): No difference Clinic use during study period increased GEM, $p<0.05$; ER lower, $p<0.05$; hospital care increased for CG Cost savings over 24 months: None (GEM higher costs by 34.8% to month 16, lower than CG by 37.8% months 16-24)	*Quality of health & social care* • Quality assurance review (QAR) improved (over time) ($F=4.12$, $p=0.004$), attributed to assessment, care planning & drug use review • Continuity of care improved (F 5.76, p=0..019), other quality of care measures improved (F 2.06, $p=0.01$) • QAR assessment & planning – (adverse increase in CG), (MD 0.06, $p<0.05$), (attributed to less consistent reporting of vital signs in the GEM group • Drug use review improved (MD 0.15, $p<0.05$) Patient satisfaction PSQ high (8 months). $F=4.44$; $p=0.013$ (over time) • Positive changes in Pressing problem Index stress (maintained at 16 months)	GEM had no overall impact on health or function, health care utilisation or costs of care but significant reductions were found during 16-24 month period. GEM provided more coordinated health care, and improved quality of care but CG was better on assessment and care planning. GEM patients seen more frequently by providers than CG resulting in higher OP costs
Epstein 1990 USA (-)	**PREVENTIVE CARE:** GEM Outpatient Health Maintenance Organisation (HMO) 12 months (3 months where indicated) Cognitive function; No difference Improved at 3 months Deaths: No difference	No significant differences among groups in patients hospitalised, admitted to nursing home, hospital days, diagnostic tests, doctor visits or costs	*Process* Geriatric assessment teams: • Had significantly more new diagnosis than internists, $p<=0.05$ • Provided psychosocial evaluations more frequently, $p<=0.001$ • Suggested changes in medication regimes more often, $p<=0.001$ • Provided home ($p<=0.05$) & community services more often $p<=0.001$ Satisfaction: non significant increase at 3, 12 months; low functional status associated with more satisfaction, $p< 0.05$	Consultative GEM improved processes of care with no effect on outcomes for older ambulatory patients in an HMO. New teams provided comprehensive and continuity of care which require additional targeting.

Fordyce 1997 USA (-)	**PREVENTIVE CARE:** GEM Outpatient 3 years Improved health, function, healthy behaviours; 20% increase in robust elderly and decrease in frailty (No comparison data given)	Mean change from baseline to follow-up OP visits IG + 1.4, CG -0.3 Hospital admissions IG + 0.15, CG -0.07; hospital stays IG +0.62, IG -0.03 •Fewer hospitalisations • Shorter length of stay. • STAR less likely to be hospitalised (baseline pre intervention period) RR 0.49 (95% CI 0.32, 0.74), p<0.001 • Increased short term use by STAR because intervention identified problems & provided treatment Costs: None	No comparison data given •Satisfaction - self report; 93% satisfied/very satisfied Life changes-self report: • 52%increased safety • 56%completion of power of attorney for health care • 59% increased medication understanding • 69% perceived ability to participate more effectively in their own health care	Improved health and behaviours and increased satisfaction reported , with increased short term utilisation of medical services , but fewer hospitalisations and shorter length of stay
Phelan 2007 USA (-)	**PREVENTIVE CARE:** GEM Outpatient Senior resource team (SRT) 24 months (12 months where indicated) Primary: Physical subscale (AIMS 2 arthritis): No difference Affect subscale (ill health): No difference Secondary: ADL (12 months) (improved) RR 0.67, 95% CI 0.45, 0.99 (less disability) Psychological well being (mental health index) (improved), Mean IG 77.6 CG 75.5, p=0.03 Self rated health (good); No difference	Deaths (adverse) RR 1.55 (95%CI 1.00, 2.39) p=0.045 unadjusted Adjusted IG 11.4% CG 7.1%, p=0.03 Hospitalisations (%): No difference (Rate in years 1 and 2 higher in IG) Costs: none	•PCPrs satisfaction with SRT high (>70%) •PCP satisfaction with systems support low IG 17% CG 25%, 12 m; high 24 m, IG 39% CG 29%, ns •Provider self efficacy high in both groups *Other process of care of PCPs:* Blood Pressure control: No difference Prescription of high risk medication; No difference *Prop screened for geriatric syndrome: (adjusted p values)* Depression (12 m increased) RR 2.39 (95% CI 1.92, 2.98), p<0.001 Cognitive impairment (12 m increased) RR 2.36 (95% CI 1.88, 2.96), p<0.001 Falls (12 m increased) RR 2.68 (95% CI 2.08, 3.47), p<0.001	Intervention providers screened significantly more for geriatric syndromes and improved AD disability at 12 months, but not at 24 months. Adverse effect on mortality was of concern. PCPs viewed the addition of interdisciplinary team favourably.
Silverman 1995 USA (-)	**PREVENTIVE CARE:** GEM Outpatient 12 months Functional health (Barthel Indexl): No difference Cognitive health MMSE: No difference Dementia (Clinical dementia rating scale): No difference Depression (Diagnostic Interview schedule): No difference Anxiety: No difference Care giver outcomes (adjusted) Family strain scale (decreased) MD -4.5, p=0.002 Global burden scale (decreased) MD -0.11, P=0.013	Service use: No significant differences: NH home placement Physician & other health provider visits ER visits Length of hospital stay. Costs: none	*Diagnoses: Proportion of patients* Cognitive impairment (improved) RR 2.81 (95% CI 1.84, 4.30) Depression (improved) RR 2.01 (95% CI 1.36, 2.96) Incontinence (improved) RR 3.13 (95% CI1.87, 5.26) Patient satisfaction: Both groups highly satisfied (no data) Personal qualities of physician (GAU sub-scale) rated high, p=0.038	Consultative outpatient GEM significantly improved diagnosis of common health problems, psychological benefits to patients and reduced caregiver stress, with no effect on health status, or service use. GEM patients were satisfied with personal qualities of physician.

	Deaths: No difference			

NON-RANDOMISED STUDIES: Integrated team model

Study ID/Country	**Effectiveness on health, function & quality of life outcomes**	**Effectiveness on resource use**	**Processes of care**	**Evidence summary**
Rahkonen, 2001 Finland	**ACUTE CARE** 36 months (3 years) Deaths: No difference (overall 42%)	Mean duration of long term institutionalised care: IG 441 days, CG 535 days, ns Cumulative time in long-term care: IG 10,148 days CG 17,122 days Difference=6,974 days (>19 yrs) Short term hospitalisations: No difference Community care: IG 35% CG 18% RR 2.0 (95% CI 0.99,4.0) – borderline significance	Mean duration of community care IG 671 days, CG 503 days, $p=0.025$	The institutionalization of elderly patients after a delirious state could be delayed using rehabilitation periods and systematic intervention with the case manager in an integrated team. Intensive intervention may have cost implications but the model can be adapted in other settings
Young 2005 UK	**ACUTE CARE** 3,6,12 months ADL (Extended ADL): 6m Difference between mean differences–0.33; (95% CI 0.73, 0.07, $p<0.001$ (adjusted) IC similar to care given to CG ADL (BI): No significant differences HAD: No significant differences Deaths: no difference IG39%, CG 38% *Embedded case-control study, N=248, 29% received IC services* 12m: EADL: MD IC: -0.18 (95%CI-1.16,0.8)- slightly worse change scores than CG	New institutional care placements: No significant difference Hospital admissions: No significant difference IG: Non significant trend to lower institutional care , but higher use of hospital care Embedded case study for those who received IC: New institutional care admissions: No significant difference Hospital bed days use: IC significantly greater over 12 months: (+8 days, 95% CI 3.1-13.0)	Uptake of IC: 29% Delay in service engagement: 44% patients receiving IC did so more than 10 days after discharge	The city-wide IC service was associated with similar clinical outcomes but did not achieve its strategic objectives of reducing long-term care and hospital use. Close integration of IC with other older peoples services needs to be adequately achieved.

O' Connor 1991, UK	**CHRONIC CARE** 12 and 24 months Deaths: No difference (overall 43% within 2 years)	Admissions to long term institutions (stratified as living alone or living with others) During 12 m: Living alone/with others: No significant differences for mild or severe dementia During 24 m: Mild dementia: No difference Moderate/severe: IG 64% lived alone, admitted CG 8% lived alone, admitted p=0.004 Overall at 24 m: Admissions to institutions IG 33.7%, CG 21.9%, ns		Early intervention did not affect admission rates in subjects who lived with supporters.However, a significantly greater proportion of subjects with moderate or severe dementia living alone and receiving intervention were admitted to long term care The team identified people early but greater experience might be important in enabling subjects to live at home longer

Data for longest follow up; IG Intervention Group, CG Control Group, RR Relative risk; OR Odds Ratio; CI Confidence Interval; MD Mean difference (SMD Standardised MD); ns Not significant, p<0.05 significant; ADL Activities of daily living,IADL: Instrumental ADL, EADL Extended ADL; CM Case management, CGA Comprehensive Geriatric assessment, GEM Geraitric evaluation & management;GP General Practitioner; ED/R Emergency department/room; OP Outpatient, NH Nursing home, MMSE Mini mental score examination; Qol Quality of life, PCP Primary care providers; GDS Geriatric depression scale; HAD Hospital anxiety & depression

Appendix 9: List of included studies and related papers for Systematic Review for tables 1 – 6 (Appendices 7 and 8)

Aiken LS, Butner J, Lockhart CA, Volk-Craft BE, Hamilton G & Williams FG (2006): Outcome evaluation of a randomized trial of the PhoenixCare intervention: program of case management and coordinated care for the seriously chronically ill. *J Palliat Med* **9**, 111-126.

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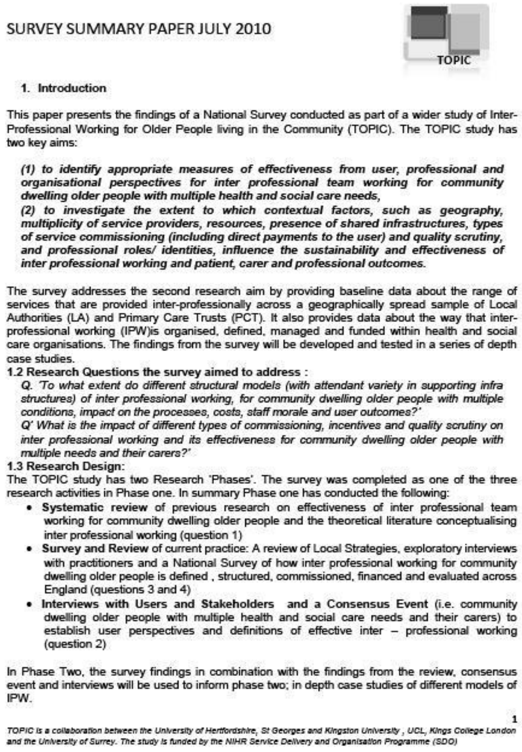
Appendix 10: Summary of Survey Results



SURVEY SUMMARY PAPER JULY 2010

1. Introduction

This paper presents the findings of a National Survey conducted as part of a wider study of Inter-Professional Working for Older People living in the Community (TOPIC). The TOPIC study has two key aims:

(1) to identify appropriate measures of effectiveness from user, professional and organisational perspectives for inter professional team working for community dwelling older people with multiple health and social care needs,
(2) to investigate the extent to which contextual factors, such as geography, multiplicity of service providers, resources, presence of shared infrastructures, types of service commissioning (including direct payments to the user) and quality scrutiny, and professional roles/ identities, influence the sustainability and effectiveness of inter professional working and patient, carer and professional outcomes.

The survey addresses the second research aim by providing baseline data about the range of services that are provided inter-professionally across a geographically spread sample of Local Authorities (LA) and Primary Care Trusts (PCT). It also provides data about the way that inter-professional working (IPW)is organised, defined, managed and funded within health and social care organisations. The findings from the survey will be developed and tested in a series of depth case studies.

1.2 Research Questions the survey aimed to address :

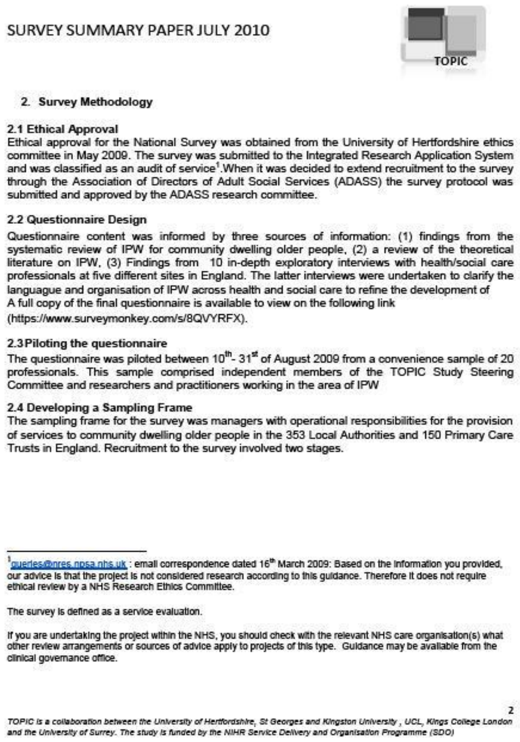
Q. 'To what extent do different structural models (with attendant variety in supporting infra structures) of inter professional working, for community dwelling older people with multiple conditions, impact on the processes, costs, staff morale and user outcomes?'
Q' What is the impact of different types of commissioning, incentives and quality scrutiny on inter professional working and its effectiveness for community dwelling older people with multiple needs and their carers?'

1.3 Research Design:

The TOPIC study has two Research 'Phases'. The survey was completed as one of the three research activities in Phase one. In summary Phase one has conducted the following:

- **Systematic review** of previous research on effectiveness of inter professional team working for community dwelling older people and the theoretical literature conceptualising inter professional working (question 1)
- **Survey and Review** of current practice: A review of Local Strategies, exploratory interviews with practitioners and a National Survey of how inter professional working for community dwelling older people is defined , structured, commissioned, financed and evaluated across England (questions 3 and 4)
- **Interviews with Users and Stakeholders and a Consensus Event** (i.e. community dwelling older people with multiple health and social care needs and their carers) to establish user perspectives and definitions of effective inter – professional working (question 2)

In Phase Two, the survey findings in combination with the findings from the review, consensus event and interviews will be used to inform phase two; in depth case studies of different models of IPW.



SURVEY SUMMARY PAPER JULY 2010

2. Survey Methodology

2.1 Ethical Approval

Ethical approval for the National Survey was obtained from the University of Hertfordshire ethics committee in May 2009. The survey was submitted to the Integrated Research Application System and was classified as an audit of service[1].When it was decided to extend recruitment to the survey through the Association of Directors of Adult Social Services (ADASS) the survey protocol was submitted and approved by the ADASS research committee.

2.2 Questionnaire Design

Questionnaire content was informed by three sources of information: (1) findings from the systematic review of IPW for community dwelling older people, (2) a review of the theoretical literature on IPW, (3) Findings from 10 in-depth exploratory interviews with health/social care professionals at five different sites in England. The latter interviews were undertaken to clarify the languague and organisation of IPW across health and social care to refine the development of
A full copy of the final questionnaire is available to view on the following link (https://www.surveymonkey.com/s/8QVYRFX).

2.3 Piloting the questionnaire

The questionnaire was piloted between 10th- 31st of August 2009 from a convenience sample of 20 professionals. This sample comprised independent members of the TOPIC Study Steering Committee and researchers and practitioners working in the area of IPW

2.4 Developing a Sampling Frame

The sampling frame for the survey was managers with operational responsibilities for the provision of services to community dwelling older people in the 353 Local Authorities and 150 Primary Care Trusts in England. Recruitment to the survey involved two stages.

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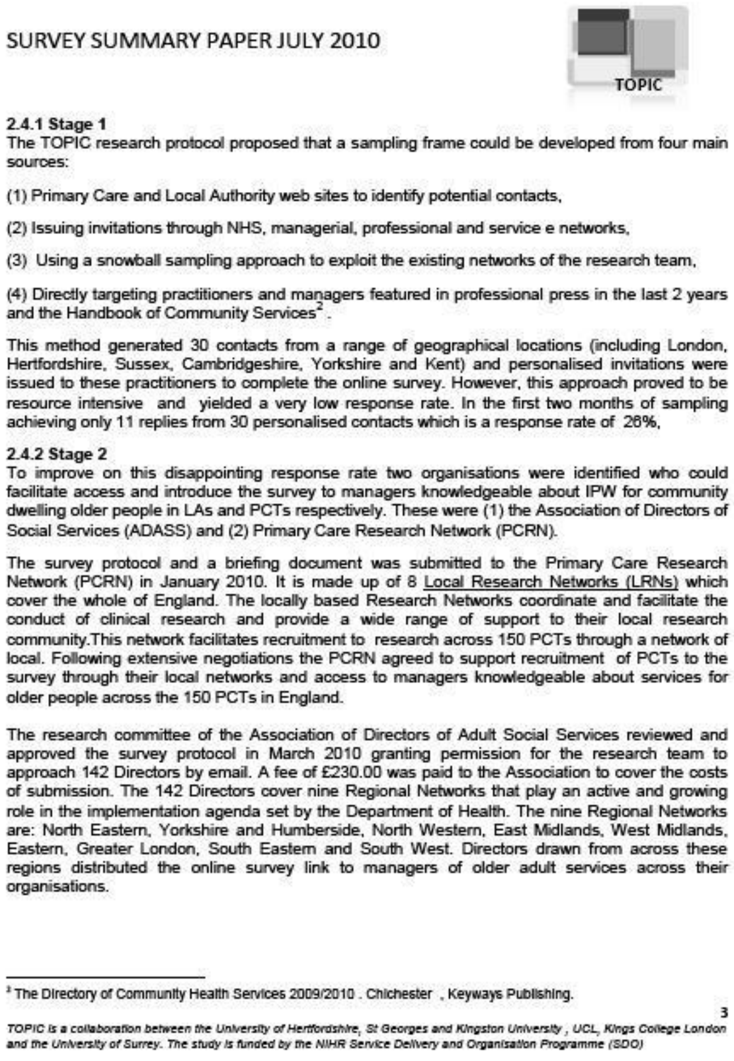
[1] queries@nres.npsa.nhs.uk : email correspondence dated 16th March 2009: Based on the information you provided, our advice is that the project is not considered research according to this guidance. Therefore it does not require ethical review by a NHS Research Ethics Committee.

The survey is defined as a service evaluation.

If you are undertaking the project within the NHS, you should check with the relevant NHS care organisation(s) what other review arrangements or sources of advice apply to projects of this type. Guidance may be available from the clinical governance office.



2.4.1 Stage 1
The TOPIC research protocol proposed that a sampling frame could be developed from four main sources:

(1) Primary Care and Local Authority web sites to identify potential contacts,

(2) Issuing invitations through NHS, managerial, professional and service e networks,

(3) Using a snowball sampling approach to exploit the existing networks of the research team,

(4) Directly targeting practitioners and managers featured in professional press in the last 2 years and the Handbook of Community Services[2] .

This method generated 30 contacts from a range of geographical locations (including London, Hertfordshire, Sussex, Cambridgeshire, Yorkshire and Kent) and personalised invitations were issued to these practitioners to complete the online survey. However, this approach proved to be resource intensive and yielded a very low response rate. In the first two months of sampling achieving only 11 replies from 30 personalised contacts which is a response rate of 26%,

2.4.2 Stage 2
To improve on this disappointing response rate two organisations were identified who could facilitate access and introduce the survey to managers knowledgeable about IPW for community dwelling older people in LAs and PCTs respectively. These were (1) the Association of Directors of Social Services (ADASS) and (2) Primary Care Research Network (PCRN).

The survey protocol and a briefing document was submitted to the Primary Care Research Network (PCRN) in January 2010. It is made up of 8 Local Research Networks (LRNs) which cover the whole of England. The locally based Research Networks coordinate and facilitate the conduct of clinical research and provide a wide range of support to their local research community.This network facilitates recruitment to research across 150 PCTs through a network of local. Following extensive negotiations the PCRN agreed to support recruitment of PCTs to the survey through their local networks and access to managers knowledgeable about services for older people across the 150 PCTs in England.

The research committee of the Association of Directors of Adult Social Services reviewed and approved the survey protocol in March 2010 granting permission for the research team to approach 142 Directors by email. A fee of £230.00 was paid to the Association to cover the costs of submission. The 142 Directors cover nine Regional Networks that play an active and growing role in the implementation agenda set by the Department of Health. The nine Regional Networks are: North Eastern, Yorkshire and Humberside, North Western, East Midlands, West Midlands, Eastern, Greater London, South Eastern and South West. Directors drawn from across these regions distributed the online survey link to managers of older adult services across their organisations.

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[2] The Directory of Community Health Services 2009/2010 . Chichester , Keyways Publishing.

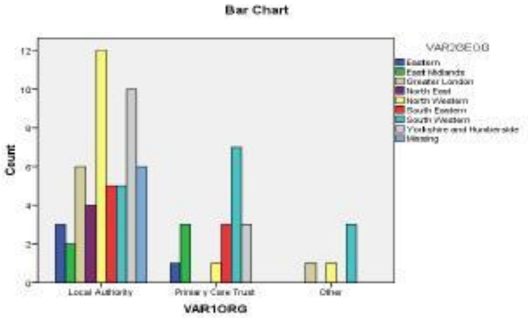
2.5 Response Rate

The online survey was administered in two phases September-October 2009 and April–May 2010 to a sample of health and social care professionals in 292 organisations (142 LA, 150 PCT). The survey achieved a total of 91 responses which is an overall response rate of 31%.

40% (57) of the 91 were respondents from adult social care services contacted through ADASS.
15% (23) of the 91 were respondents from health services contacted through the PCRN
12% (11) of the 91 were respondents from the contacts drawn up by the TOPIC Steering Committee

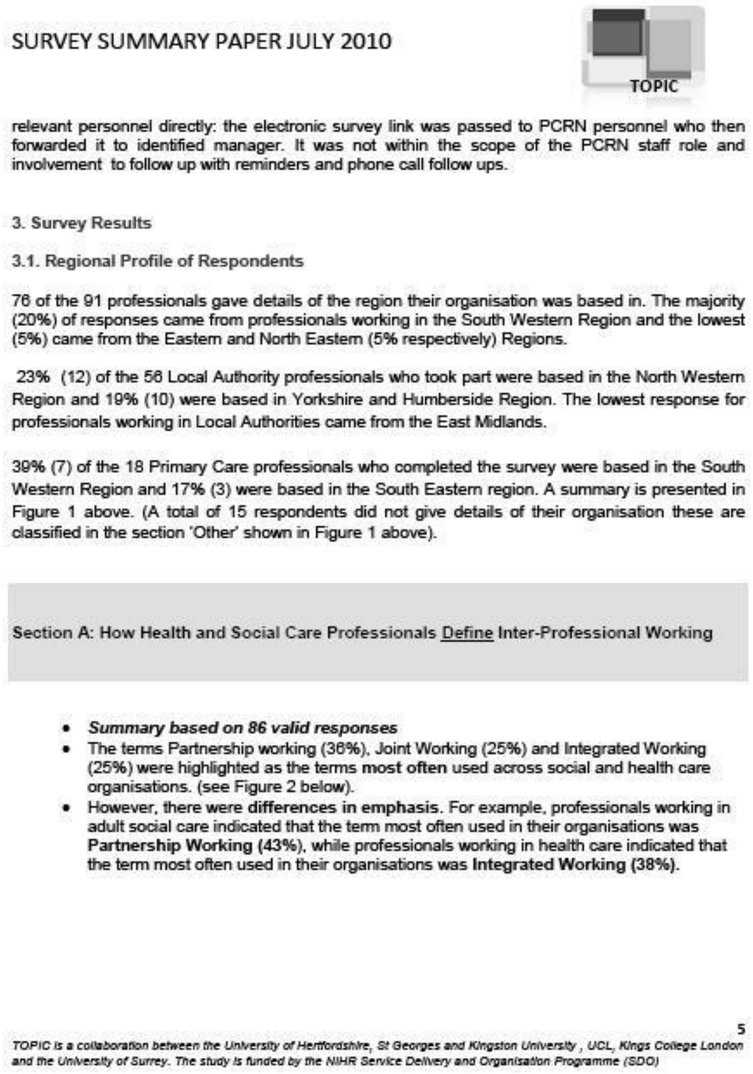
The number of responses to individual questions varies because respondents did not always complete every question listed in the survey. For example looking at the ADASS sample a total of 57 professionals started the survey, but only 38 (66.7%) completed the survey.

FIGURE 1
ORGANISATION BY REGIONAL LOCATION



2.5.1 Explaining the low response rate

The low response rate can be attributed to the difficulty of gaining access to the relevant populations within the target organisations many of which would have been experiencing major internal changes at a time of uncertainly and organisational transition. The process of identifying relevant contacts proved more difficult in the PCT contexts than the LA context. Once access had been approved via the Association of Directors of Adult Services the TOPIC team were able to use emails direct to key contacts. With regard to the PCT population the TOPIC team could not contact



relevant personnel directly: the electronic survey link was passed to PCRN personnel who then forwarded it to identified manager. It was not within the scope of the PCRN staff role and involvement to follow up with reminders and phone call follow ups.

3. Survey Results

3.1. Regional Profile of Respondents

76 of the 91 professionals gave details of the region their organisation was based in. The majority (20%) of responses came from professionals working in the South Western Region and the lowest (5%) came from the Eastern and North Eastern (5% respectively) Regions.

23% (12) of the 56 Local Authority professionals who took part were based in the North Western Region and 19% (10) were based in Yorkshire and Humberside Region. The lowest response for professionals working in Local Authorities came from the East Midlands.

39% (7) of the 18 Primary Care professionals who completed the survey were based in the South Western Region and 17% (3) were based in the South Eastern region. A summary is presented in Figure 1 above. (A total of 15 respondents did not give details of their organisation these are classified in the section 'Other' shown in Figure 1 above).

Section A: How Health and Social Care Professionals Define Inter-Professional Working

- ***Summary based on 86 valid responses***
- The terms Partnership working (36%), Joint Working (25%) and Integrated Working (25%) were highlighted as the terms **most often** used across social and health care organisations. (see Figure 2 below).
- However, there were **differences in emphasis**. For example, professionals working in adult social care indicated that the term most often used in their organisations was **Partnership Working (43%)**, while professionals working in health care indicated that the term most often used in their organisations was **Integrated Working (38%)**.

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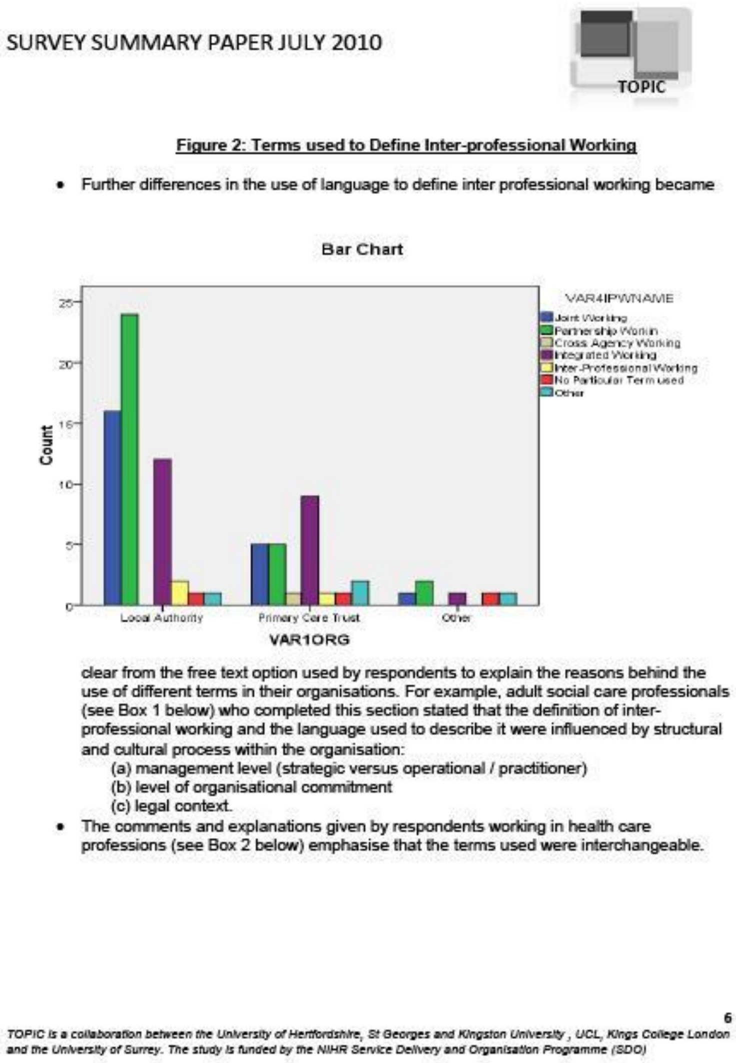

Figure 2: Terms used to Define Inter-professional Working

- Further differences in the use of language to define inter professional working became clear from the free text option used by respondents to explain the reasons behind the use of different terms in their organisations. For example, adult social care professionals (see Box 1 below) who completed this section stated that the definition of inter-professional working and the language used to describe it were influenced by structural and cultural process within the organisation:
  (a) management level (strategic versus operational / practitioner)
  (b) level of organisational commitment
  (c) legal context.
- The comments and explanations given by respondents working in health care professions (see Box 2 below) emphasise that the terms used were interchangeable.

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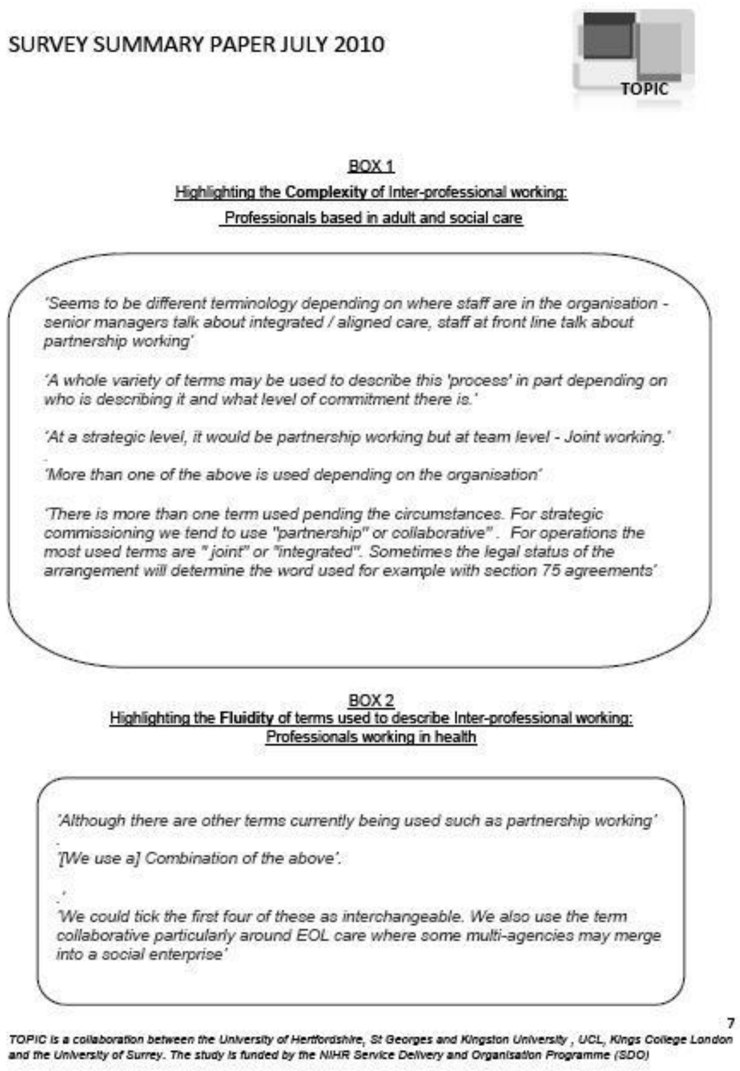

BOX 1

Highlighting the Complexity of Inter-professional working:

Professionals based in adult and social care

'Seems to be different terminology depending on where staff are in the organisation - senior managers talk about integrated / aligned care, staff at front line talk about partnership working'

'A whole variety of terms may be used to describe this 'process' in part depending on who is describing it and what level of commitment there is.'

'At a strategic level, it would be partnership working but at team level - Joint working.'

'More than one of the above is used depending on the organisation'

'There is more than one term used pending the circumstances. For strategic commissioning we tend to use "partnership" or collaborative" . For operations the most used terms are " joint" or "integrated". Sometimes the legal status of the arrangement will determine the word used for example with section 75 agreements'

BOX 2

Highlighting the Fluidity of terms used to describe Inter-professional working:

Professionals working in health

'Although there are other terms currently being used such as partnership working'

'[We use a] Combination of the above'.

.'

'We could tick the first four of these as interchangeable. We also use the term collaborative particularly around EOL care where some multi-agencies may merge into a social enterprise'

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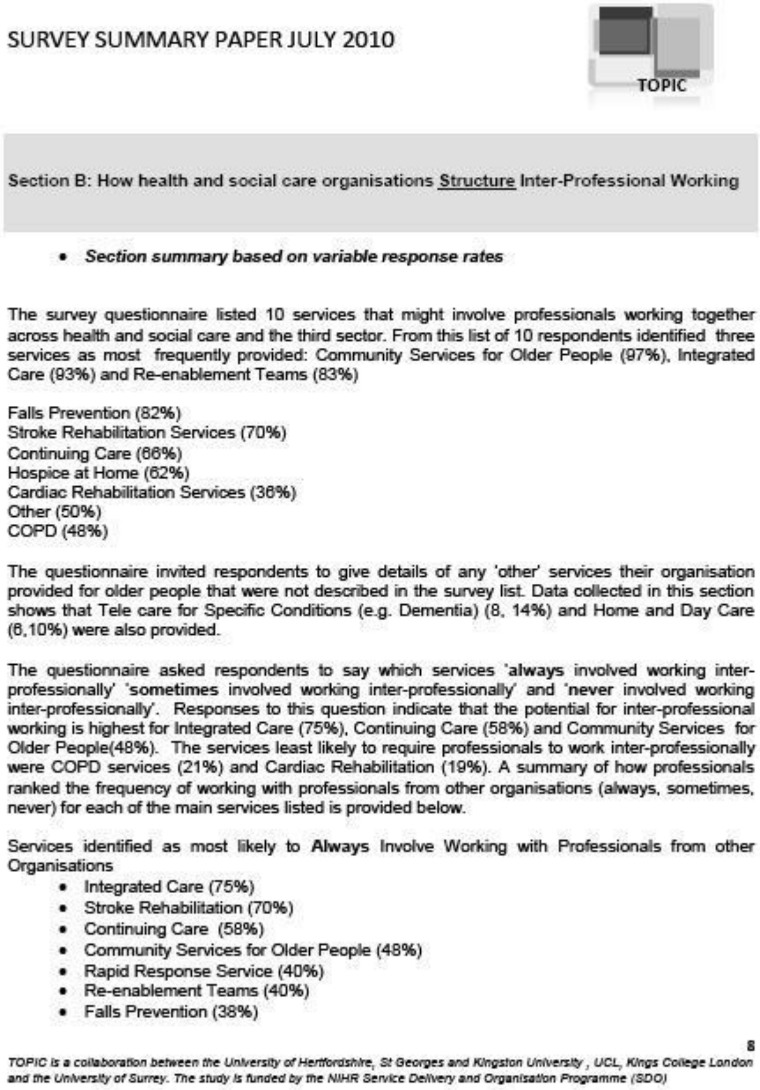


Section B: How health and social care organisations Structure Inter-Professional Working

- ***Section summary based on variable response rates***

The survey questionnaire listed 10 services that might involve professionals working together across health and social care and the third sector. From this list of 10 respondents identified three services as most frequently provided: Community Services for Older People (97%), Integrated Care (93%) and Re-enablement Teams (83%)

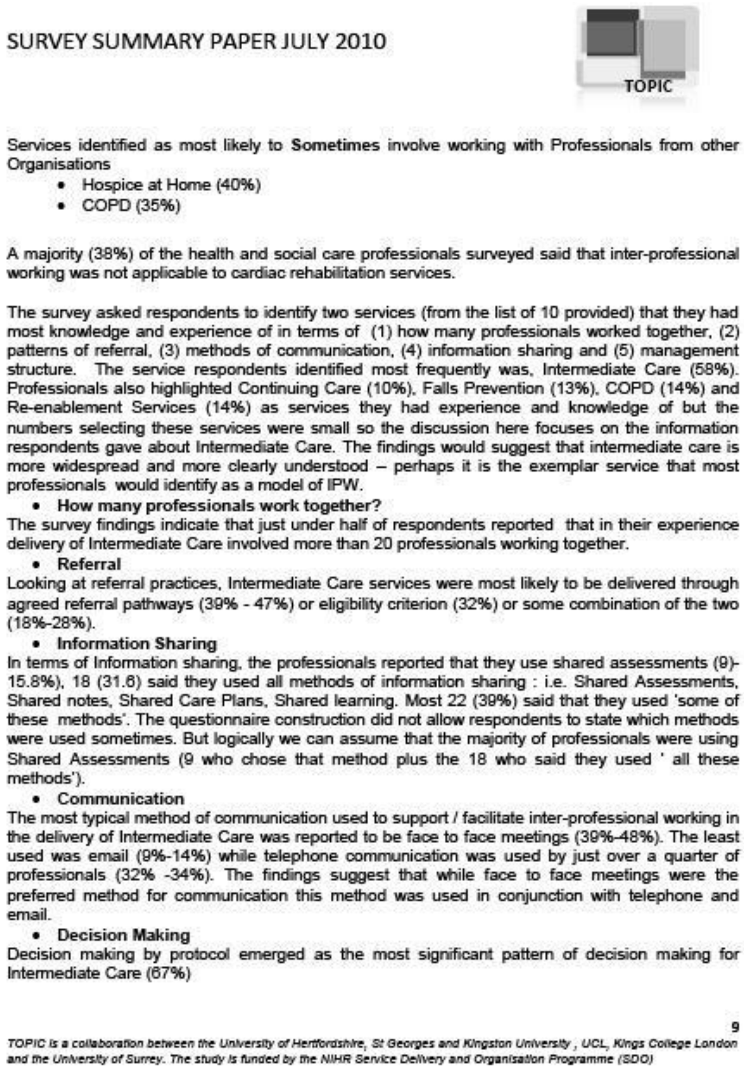
Falls Prevention (82%)
Stroke Rehabilitation Services (70%)
Continuing Care (66%)
Hospice at Home (62%)
Cardiac Rehabilitation Services (36%)
Other (50%)
COPD (48%)

The questionnaire invited respondents to give details of any 'other' services their organisation provided for older people that were not described in the survey list. Data collected in this section shows that Tele care for Specific Conditions (e.g. Dementia) (8, 14%) and Home and Day Care (6,10%) were also provided.

The questionnaire asked respondents to say which services '**always** involved working inter-professionally' '**sometimes** involved working inter-professionally' and '**never** involved working inter-professionally'. Responses to this question indicate that the potential for inter-professional working is highest for Integrated Care (75%), Continuing Care (58%) and Community Services for Older People(48%). The services least likely to require professionals to work inter-professionally were COPD services (21%) and Cardiac Rehabilitation (19%). A summary of how professionals ranked the frequency of working with professionals from other organisations (always, sometimes, never) for each of the main services listed is provided below.

Services identified as most likely to **Always** Involve Working with Professionals from other Organisations

- Integrated Care (75%)
- Stroke Rehabilitation (70%)
- Continuing Care (58%)
- Community Services for Older People (48%)
- Rapid Response Service (40%)
- Re-enablement Teams (40%)
- Falls Prevention (38%)



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Services identified as most likely to **Sometimes** involve working with Professionals from other Organisations

- Hospice at Home (40%)
- COPD (35%)

A majority (38%) of the health and social care professionals surveyed said that inter-professional working was not applicable to cardiac rehabilitation services.

The survey asked respondents to identify two services (from the list of 10 provided) that they had most knowledge and experience of in terms of (1) how many professionals worked together, (2) patterns of referral, (3) methods of communication, (4) information sharing and (5) management structure. The service respondents identified most frequently was, Intermediate Care (58%). Professionals also highlighted Continuing Care (10%), Falls Prevention (13%), COPD (14%) and Re-enablement Services (14%) as services they had experience and knowledge of but the numbers selecting these services were small so the discussion here focuses on the information respondents gave about Intermediate Care. The findings would suggest that intermediate care is more widespread and more clearly understood – perhaps it is the exemplar service that most professionals would identify as a model of IPW.

- **How many professionals work together?**

The survey findings indicate that just under half of respondents reported that in their experience delivery of Intermediate Care involved more than 20 professionals working together.

- **Referral**

Looking at referral practices, Intermediate Care services were most likely to be delivered through agreed referral pathways (39% - 47%) or eligibility criterion (32%) or some combination of the two (18%-28%).

- **Information Sharing**

In terms of Information sharing, the professionals reported that they use shared assessments (9)-15.8%), 18 (31.6) said they used all methods of information sharing : i.e. Shared Assessments, Shared notes, Shared Care Plans, Shared learning. Most 22 (39%) said that they used 'some of these methods'. The questionnaire construction did not allow respondents to state which methods were used sometimes. But logically we can assume that the majority of professionals were using Shared Assessments (9 who chose that method plus the 18 who said they used ' all these methods').

- **Communication**

The most typical method of communication used to support / facilitate inter-professional working in the delivery of Intermediate Care was reported to be face to face meetings (39%-48%). The least used was email (9%-14%) while telephone communication was used by just over a quarter of professionals (32% -34%). The findings suggest that while face to face meetings were the preferred method for communication this method was used in conjunction with telephone and email.

- **Decision Making**

Decision making by protocol emerged as the most significant pattern of decision making for Intermediate Care (67%)

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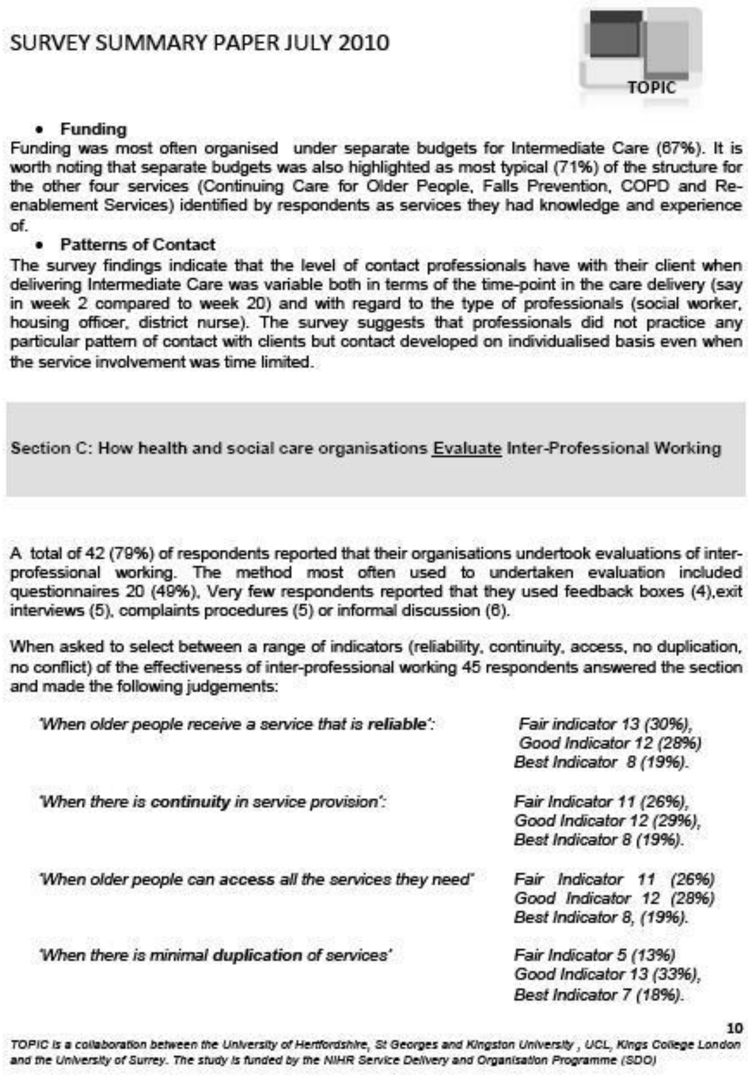

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- **Funding**

Funding was most often organised under separate budgets for Intermediate Care (67%). It is worth noting that separate budgets was also highlighted as most typical (71%) of the structure for the other four services (Continuing Care for Older People, Falls Prevention, COPD and Re-enablement Services) identified by respondents as services they had knowledge and experience of.

- **Patterns of Contact**

The survey findings indicate that the level of contact professionals have with their client when delivering Intermediate Care was variable both in terms of the time-point in the care delivery (say in week 2 compared to week 20) and with regard to the type of professionals (social worker, housing officer, district nurse). The survey suggests that professionals did not practice any particular pattern of contact with clients but contact developed on individualised basis even when the service involvement was time limited.

Section C: How health and social care organisations Evaluate Inter-Professional Working

A total of 42 (79%) of respondents reported that their organisations undertook evaluations of inter-professional working. The method most often used to undertaken evaluation included questionnaires 20 (49%), Very few respondents reported that they used feedback boxes (4),exit interviews (5), complaints procedures (5) or informal discussion (6).

When asked to select between a range of indicators (reliability, continuity, access, no duplication, no conflict) of the effectiveness of inter-professional working 45 respondents answered the section and made the following judgements:

*'When older people receive a service that is **reliable**':*	*Fair indicator 13 (30%),* *Good Indicator 12 (28%)* *Best Indicator 8 (19%).*
*'When there is **continuity** in service provision':*	*Fair Indicator 11 (26%),* *Good Indicator 12 (29%),* *Best Indicator 8 (19%).*
*'When older people can **access** all the services they need'*	*Fair Indicator 11 (26%)* *Good Indicator 12 (28%)* *Best Indicator 8, (19%).*
*'When there is minimal **duplication** of services'*	*Fair Indicator 5 (13%)* *Good Indicator 13 (33%),* *Best Indicator 7 (18%).*

10

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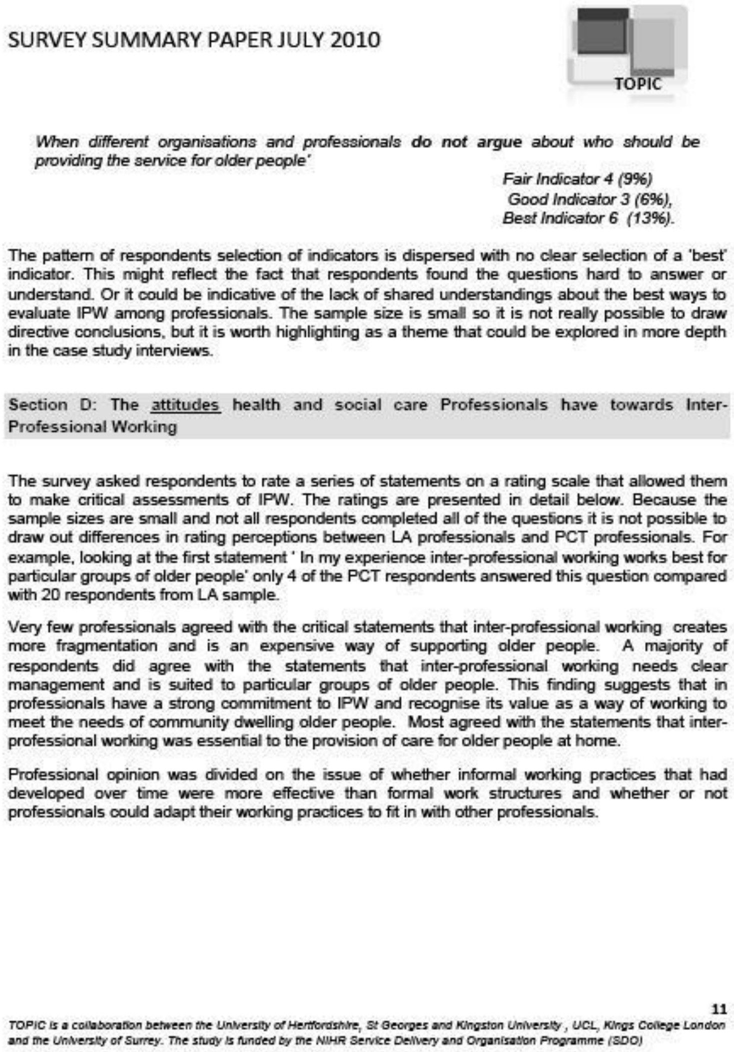


When different organisations and professionals ***do not argue*** *about who should be providing the service for older people'*

Fair Indicator 4 (9%)
Good Indicator 3 (6%),
Best Indicator 6 (13%).

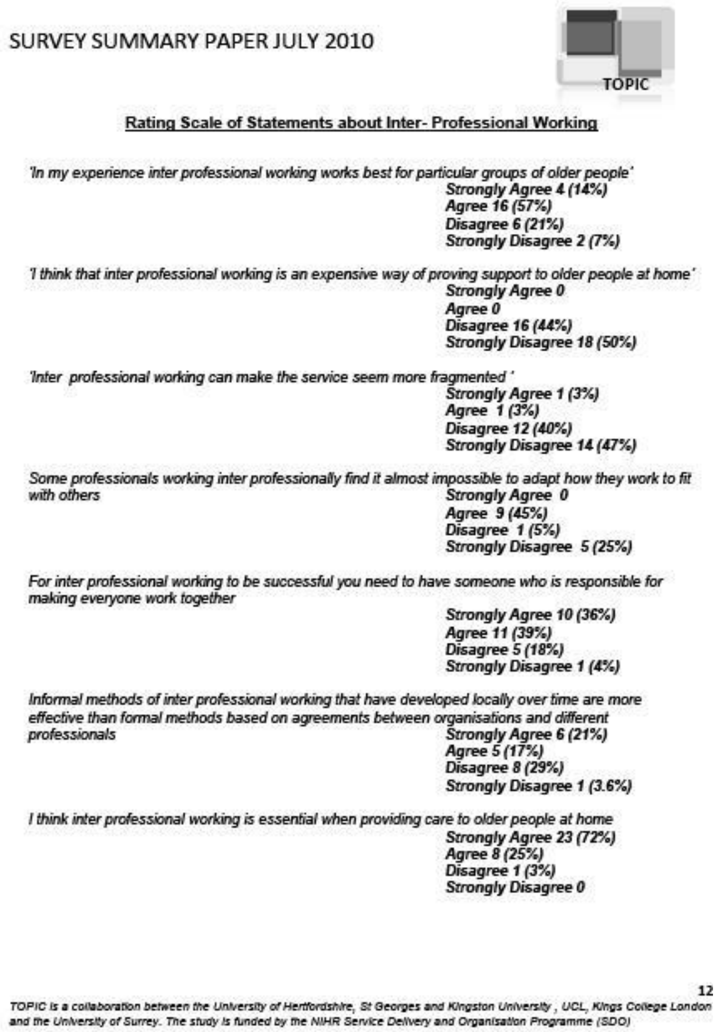
The pattern of respondents selection of indicators is dispersed with no clear selection of a 'best' indicator. This might reflect the fact that respondents found the questions hard to answer or understand. Or it could be indicative of the lack of shared understandings about the best ways to evaluate IPW among professionals. The sample size is small so it is not really possible to draw directive conclusions, but it is worth highlighting as a theme that could be explored in more depth in the case study interviews.

Section D: The attitudes health and social care Professionals have towards Inter-Professional Working

The survey asked respondents to rate a series of statements on a rating scale that allowed them to make critical assessments of IPW. The ratings are presented in detail below. Because the sample sizes are small and not all respondents completed all of the questions it is not possible to draw out differences in rating perceptions between LA professionals and PCT professionals. For example, looking at the first statement ' In my experience inter-professional working works best for particular groups of older people' only 4 of the PCT respondents answered this question compared with 20 respondents from LA sample.

Very few professionals agreed with the critical statements that inter-professional working creates more fragmentation and is an expensive way of supporting older people. A majority of respondents did agree with the statements that inter-professional working needs clear management and is suited to particular groups of older people. This finding suggests that in professionals have a strong commitment to IPW and recognise its value as a way of working to meet the needs of community dwelling older people. Most agreed with the statements that inter-professional working was essential to the provision of care for older people at home.

Professional opinion was divided on the issue of whether informal working practices that had developed over time were more effective than formal work structures and whether or not professionals could adapt their working practices to fit in with other professionals.



SURVEY SUMMARY PAPER JULY 2010

TOPIC

Rating Scale of Statements about Inter- Professional Working

'In my experience inter professional working works best for particular groups of older people'

Strongly Agree 4 (14%)
Agree 16 (57%)
Disagree 6 (21%)
Strongly Disagree 2 (7%)

'I think that inter professional working is an expensive way of proving support to older people at home'

Strongly Agree 0
Agree 0
Disagree 16 (44%)
Strongly Disagree 18 (50%)

'Inter professional working can make the service seem more fragmented '

Strongly Agree 1 (3%)
Agree 1 (3%)
Disagree 12 (40%)
Strongly Disagree 14 (47%)

Some professionals working inter professionally find it almost impossible to adapt how they work to fit with others

Strongly Agree 0
Agree 9 (45%)
Disagree 1 (5%)
Strongly Disagree 5 (25%)

For inter professional working to be successful you need to have someone who is responsible for making everyone work together

Strongly Agree 10 (36%)
Agree 11 (39%)
Disagree 5 (18%)
Strongly Disagree 1 (4%)

Informal methods of inter professional working that have developed locally over time are more effective than formal methods based on agreements between organisations and different professionals

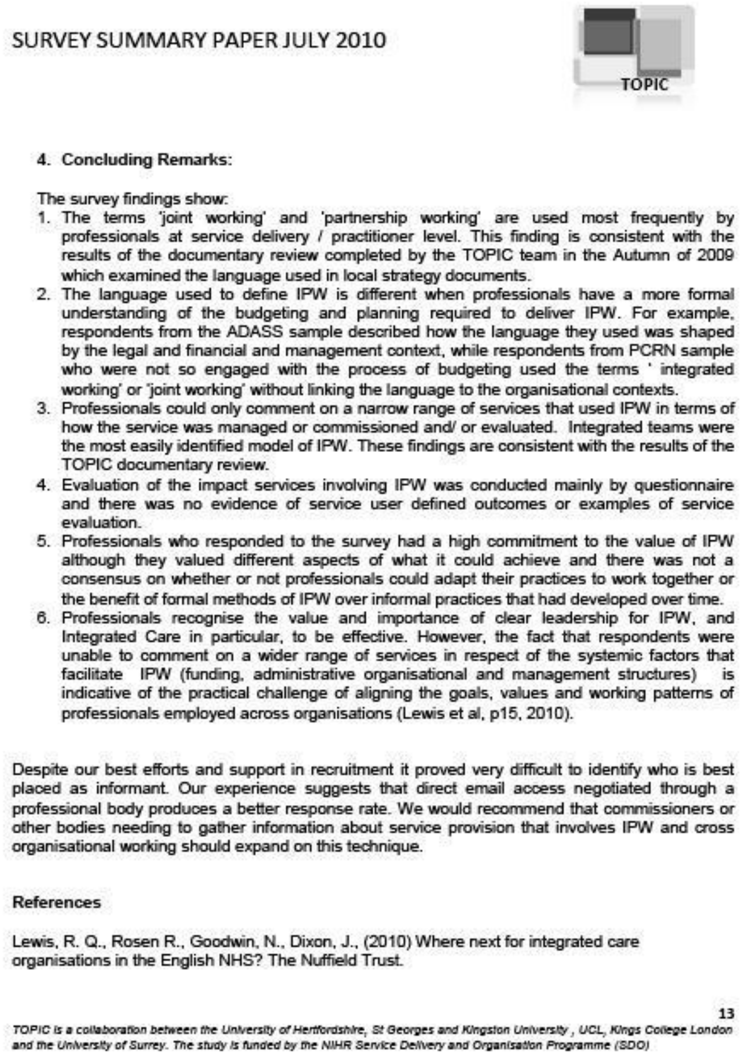
Strongly Agree 6 (21%)
Agree 5 (17%)
Disagree 8 (29%)
Strongly Disagree 1 (3.6%)

I think inter professional working is essential when providing care to older people at home

Strongly Agree 23 (72%)
Agree 8 (25%)
Disagree 1 (3%)
Strongly Disagree 0

12

TOPIC is a collaboration between the University of Hertfordshire, St Georges and Kingston University , UCL, Kings College London and the University of Surrey. The study is funded by the NIHR Service Delivery and Organisation Programme (SDO)



4. **Concluding Remarks:**

The survey findings show:

1. The terms 'joint working' and 'partnership working' are used most frequently by professionals at service delivery / practitioner level. This finding is consistent with the results of the documentary review completed by the TOPIC team in the Autumn of 2009 which examined the language used in local strategy documents.
2. The language used to define IPW is different when professionals have a more formal understanding of the budgeting and planning required to deliver IPW. For example, respondents from the ADASS sample described how the language they used was shaped by the legal and financial and management context, while respondents from PCRN sample who were not so engaged with the process of budgeting used the terms ' integrated working' or 'joint working' without linking the language to the organisational contexts.
3. Professionals could only comment on a narrow range of services that used IPW in terms of how the service was managed or commissioned and/ or evaluated. Integrated teams were the most easily identified model of IPW. These findings are consistent with the results of the TOPIC documentary review.
4. Evaluation of the impact services involving IPW was conducted mainly by questionnaire and there was no evidence of service user defined outcomes or examples of service evaluation.
5. Professionals who responded to the survey had a high commitment to the value of IPW although they valued different aspects of what it could achieve and there was not a consensus on whether or not professionals could adapt their practices to work together or the benefit of formal methods of IPW over informal practices that had developed over time.
6. Professionals recognise the value and importance of clear leadership for IPW, and Integrated Care in particular, to be effective. However, the fact that respondents were unable to comment on a wider range of services in respect of the systemic factors that facilitate IPW (funding, administrative organisational and management structures) is indicative of the practical challenge of aligning the goals, values and working patterns of professionals employed across organisations (Lewis et al, p15, 2010).

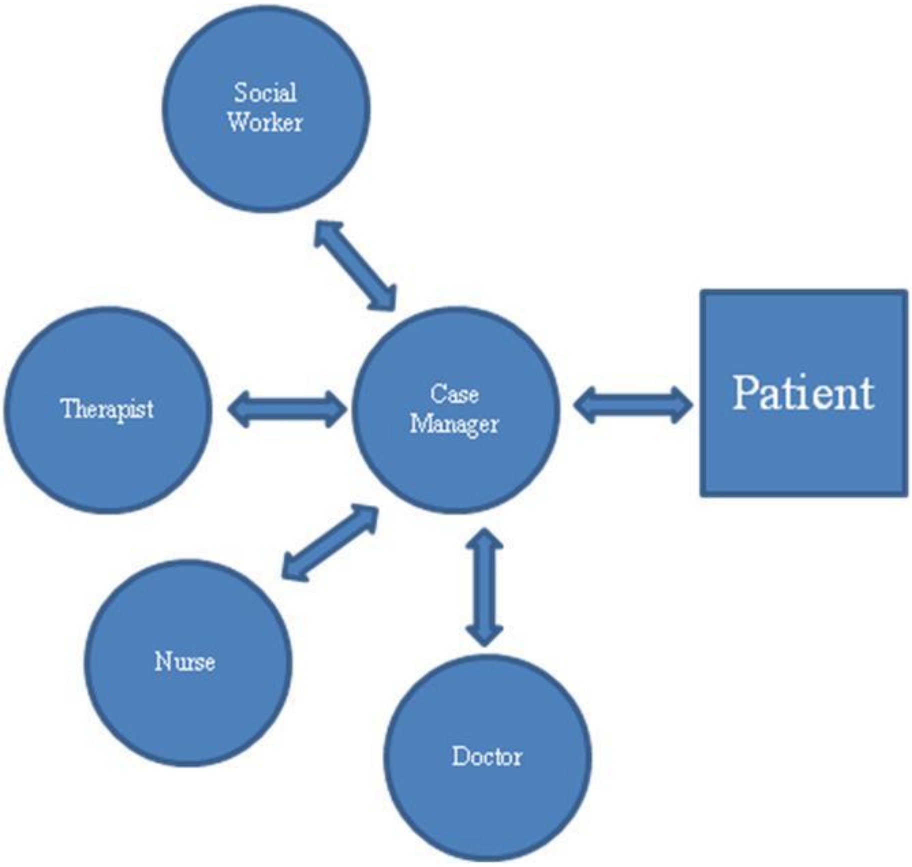
Despite our best efforts and support in recruitment it proved very difficult to identify who is best placed as informant. Our experience suggests that direct email access negotiated through a professional body produces a better response rate. We would recommend that commissioners or other bodies needing to gather information about service provision that involves IPW and cross organisational working should expand on this technique.

References

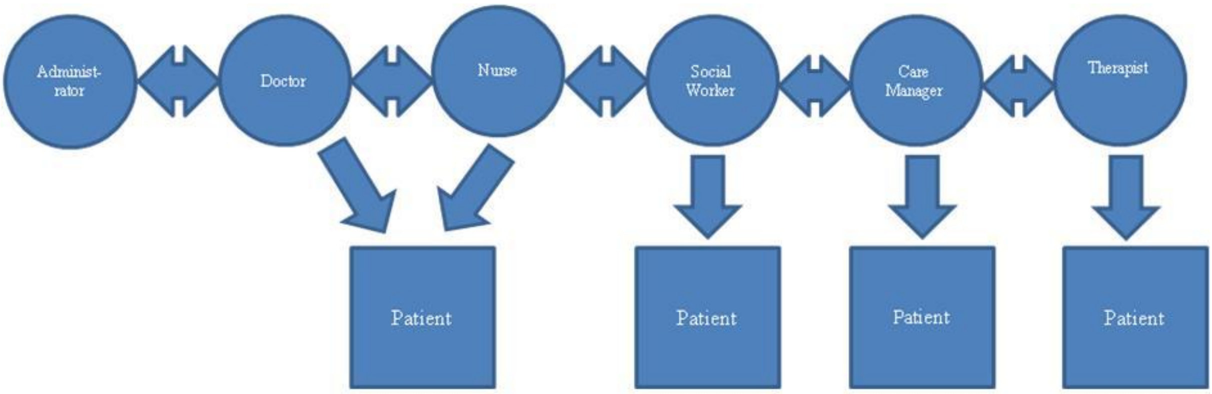
Lewis, R. Q., Rosen R., Goodwin, N., Dixon, J., (2010) Where next for integrated care organisations in the English NHS? The Nuffield Trust.

Appendix 11: Models of Interprofessional working

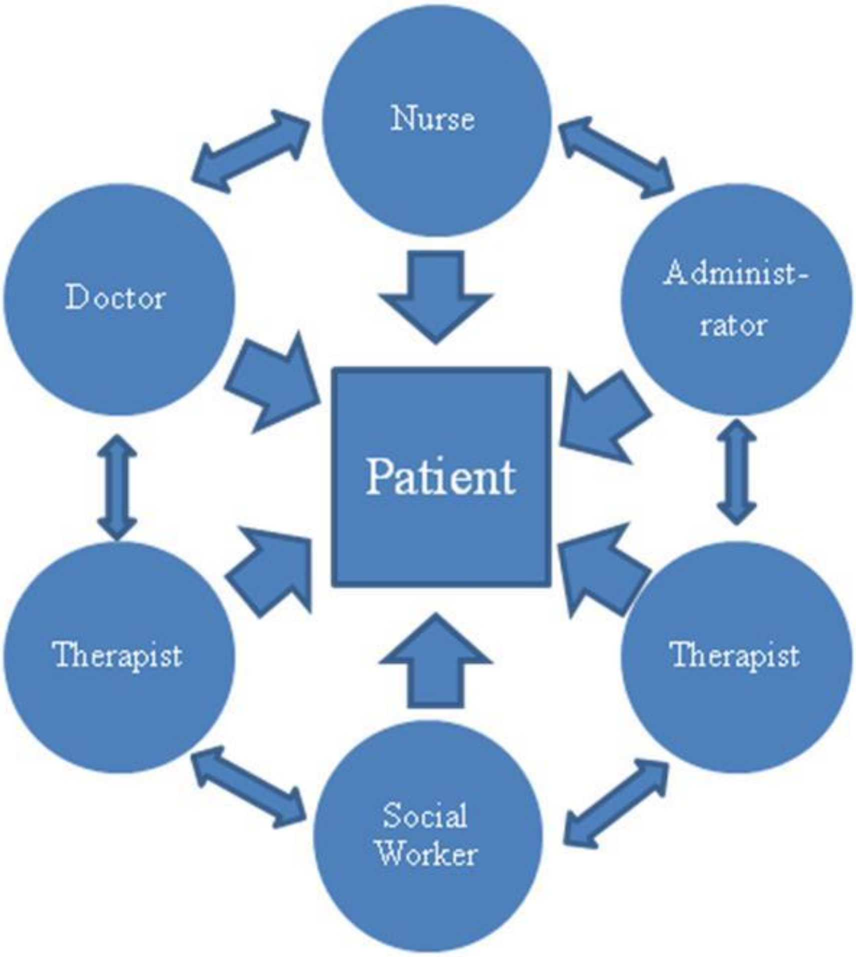
Case Management Model



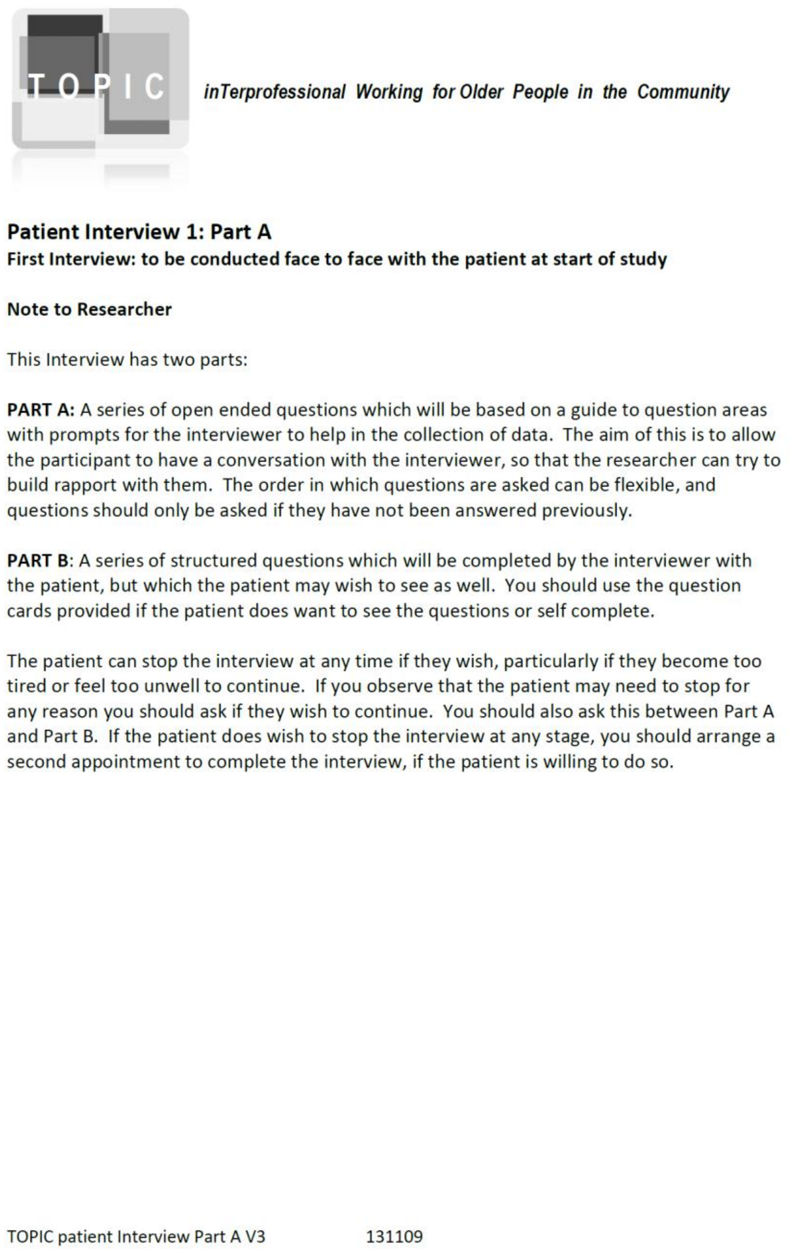
Integrated Team Model



Collaborative Model



Appendix 12: Patient Interview 1: Part A



TOPIC *inTerprofessional Working for Older People in the Community*

Patient Interview 1: Part A

First Interview: to be conducted face to face with the patient at start of study

Note to Researcher

This Interview has two parts:

PART A: A series of open ended questions which will be based on a guide to question areas with prompts for the interviewer to help in the collection of data. The aim of this is to allow the participant to have a conversation with the interviewer, so that the researcher can try to build rapport with them. The order in which questions are asked can be flexible, and questions should only be asked if they have not been answered previously.

PART B: A series of structured questions which will be completed by the interviewer with the patient, but which the patient may wish to see as well. You should use the question cards provided if the patient does want to see the questions or self complete.

The patient can stop the interview at any time if they wish, particularly if they become too tired or feel too unwell to continue. If you observe that the patient may need to stop for any reason you should ask if they wish to continue. You should also ask this between Part A and Part B. If the patient does wish to stop the interview at any stage, you should arrange a second appointment to complete the interview, if the patient is willing to do so.

TOPIC patient Interview Part A V3 131109

ID	
Date of interview	
consent	
Entered into spss	
Entered into NVIVO	

INTERPROFESSIONAL WORKING FOR OLDER PEOPLE IN THE COMMUNITY

Patients' baseline questionnaire

PART A

Researcher:

Thank you for taking part in this study. I am going to ask you some questions about you, your health and how you are feeling, and about the care you receive. This should take a maximum of one hour, and if at any time you need to have a rest or stop and continue another time please let me know.

Everything you tell me is in the strictest confidence and your anonymity will always be assured. I would like to tape our conversation today in case I need to check it against the notes that I am taking. This tape will only ever be used by the research team to help us to work on the results of this study; nobody else will have access to it at any time. It will be destroyed at the end of the study.

If anything is not clear, or you would like more information, please ask. If there are any questions that you do not want to answer please tell me.

We appreciate your time and help with this study.

Your answers will be treated in the strictest confidence and your anonymity is assured.

Patient study number ____________________

Date of interview ________________________

TOPIC patient Interview Part A V3 131109

PART A

Researcher rechecks for consent for interview and taping of interview before continuing.

Health

a. How are you today?
Prompts
.General health

b. What problems do you have with your health?
Prompts
. Specific problems and diagnoses
Length of time with condition,
Main symptoms, effects

2. What aids and treatments do you have to help you with your health problems?
Prompts
Medication – prescribed and self treatment,
Therapies – formal and informal,
Equipment – nursing and daily living aids

3. Quality of life
a. How do your health problems affect your life?
Prompts
Physical effects, including unhealed wounds etc
Activities and limits to activity
Mobility
Financial
Psychological/emotional (attitude towards illness)
Social
Family and relationships

b. What kind of help do you need most for your health problems?
Prompts
Formal/informal care
Other help and support including transport, financial, information, etc

4. Living circumstances

a. Who lives here with you?
Prompts
Relationship,
Ages

b. Who else is important in your life?
Prompts
Family structure,
Friends,
Where significant people live

, Contact with significant people – frequency and type

c. **Do you have anyone who helps you and who isn't paid for doing so?**
Prompts
Relationship with carer
Lives at home or elsewhere?
More than one?

d. **Accommodation and finance (by observation where appropriate)**
Prompts
Type of accommodation,
Owned or rented,

e. Does interviewee have any problems with their accommodation
Prompts
How does the person feel about the place and community they live in – security, social networks, isolation etc?
Access to transport/ability to get out
Have they had any adaptations /aids (if so when and who organised this) or would like some

f. Do you feel financially secure?
Prompts
Income support/disability allowance received?
Concerns about living costs

Professional Services used

What contact and help have you had with health and/or social care services in the past month /6 weeks ? Researcher: record services used, using table as a prompt:

a.

Service type	**Last contact**	**Frequency of contact**	**Reason for use**	**Location (Home/elsewhere? – where)**	**Comments**
Primary and community health services					
GP					
Practice nurse					
DN/Community nurse					
Community matron					
Community physiotherapy					
Community speech therapy					
Specialist nurses (e.g respiratory /diabetes)					
Intermediate care team					
Re-anablement team					
Local pharmacist					

(deals with repeat prescriptions and deliveries)					
Chiropody (domicilliary ?)					
Optician (domiciliary)					
Dentists (domiciliary?)					
Rapid Response Team					
Other					
Mental health					
Community mental health team					
NHS Consultant					
Counsellor					
Other					
Acute Hospital Sector					
NHS Consultant team (list specialities)					
Hospital – outpatient					
Hospital – inpatient					
Physiotherapy					
Dietician					
Local Authority funded services					
Social Worker case manager					
Occupational Therapist					
Paid home carer					
Meals on wheels					
Direct payments support worker					
Other e.g. Library at home					
Day centre					
Other					
Voluntary/community sector					
Crossroads/sitter service					
Visitor (e.g. age concern, church)					
Day centre					
Luncheon club					
DIY					
Other					
Private services (not					

provided through social care) paid for by older person/carer					
Podiatry					
Private health treatment/therapies (list)					
Cleaner					
Other					

3. Thinking about the different professionals who provide you with health/social care Who do you think of as the MAIN professional that help you ?

Prompt

For health problems,
For help in the home,
For help with personal care?
Advice on money matters/benefits

4. Thinking about the different professionals who provide you with health/social care Who do you contact first when you need extra help or have a problems?

Prompts

For health problems,
For help in the home,
For help with personal care?
When something is a sudden, unexpected and significant problem?

5. Do you think any of the services that you use currently, work together to support you ?

Prompt –

To work out/assess what kind of support care that is needed
When something is going wrong?
To make sure they don't arrive in your home at the same time ?
To share the care they provide
To work together to provide care
When they involve other people for a particular issue/problem

6. If yes can you tell me how you know they are working together?

Prompt –

care plans,
joint visits,
tell you they are going to talk to/ask someone else to visit?

7. When they work well together – what difference do you notice?

Prompt

Knew what was happening
Felt we were all working to achieve the same goals/outcomes
Treatment decisions,
Access to services

TOPIC patient Interview Part A V3 131109

Easier to manage my health/social care needs
Know about the services I have received,
Confident that everyone knows what they are doing,
They involve different people when extra I support/care is needed?
Shared decision making with me and others

8. Can you give me an example of when different professionals have not worked together on your behalf?

Duplication of services
Have to tell the same thing to different people
Did not feel confident/felt unsafe
No one taking responsibility
Decisions not being made
People not knowing about me
Did not receive the services that were promised

Prompt of outcomes from consensus conference.

1. **Anything else?**
   Is there anything else that we have not talked about that you think is important when thinking about the different professionals that you have contact with?

Researcher

9. **Demographics**
   (
   c. **Gender** Male ☐ Female ☐

   d. Date of birth? ____________________ (ask for age if date of birth a problem)

   e. How would you describe your ethnic group? NB can also decline to (Researcher: use a show card as prompt to help with answers?)

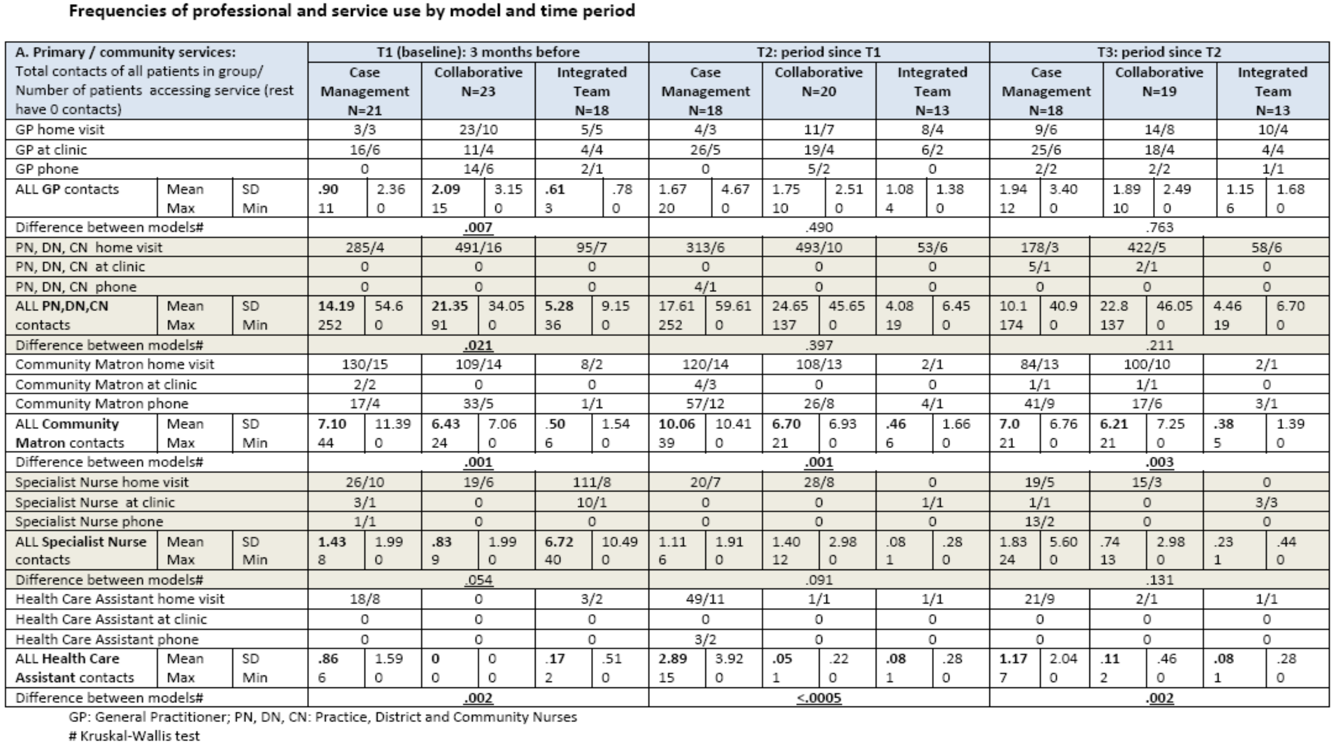
Prefers not to answer	
A **White**	
1. British	
2. Irish	
3. Any other White Background (specify)	
B. **Mixed**	
1. White and Black Caribbean	
2. White and Black African	

3. White and Asian	
4. Any other Mixed background (specify)	
C. Asian or Asian British	
1. Indian	
2. Pakistani	
3. Bangladeshi	
4. Any other Asian background (specify)	
E. Chinese or other ethnic group	
1. Chinese	
2. Any other (specify)	

f. First language ________________________________ ☐

Thank you for taking part in this study

Appendix 13: Service by model and time period



Frequencies of professional and service use by model and time period

A. Primary / community services: Total contacts of all patients in group/ Number of patients accessing service (rest have 0 contacts)			T1 (baseline): 3 months before						T2: period since T1						T3: period since T2					
			Case Management N=21		Collaborative N=23		Integrated Team N=18		Case Management N=18		Collaborative N=20		Integrated Team N=13		Case Management N=18		Collaborative N=19		Integrated Team N=13	
GP home visit			3/3		23/10		5/5		4/3		11/7		8/4		9/6		14/8		10/4	
GP at clinic			16/6		11/4		4/4		26/5		19/4		6/2		25/6		18/4		4/4	
GP phone			0		14/6		2/1		0		5/2		0		2/2		2/2		1/1	
ALL **GP** contacts	Mean Max	SD Min	**.90** 11	2.36 0	**2.09** 15	3.15 0	**.61** 3	.78 0	1.67 20	4.67 0	1.75 10	2.51 0	1.08 4	1.38 0	1.94 12	3.40 0	1.89 10	2.49 0	1.15 6	1.68 0
Difference between models#			**.007**						.490						.763					
PN, DN, CN home visit			285/4		491/16		95/7		313/6		493/10		53/6		178/3		422/5		58/6	
PN, DN, CN at clinic			0		0		0		0		0		0		5/1		2/1		0	
PN, DN, CN phone			0		0		0		4/1		0		0		0		0		0	
ALL **PN,DN,CN** contacts	Mean Max	SD Min	**14.19** 252	54.6 0	**21.35** 91	34.05 0	**5.28** 36	9.15 0	17.61 252	59.61 0	24.65 137	45.65 0	4.08 19	6.45 0	10.1 174	40.9 0	22.8 137	46.05 0	4.46 19	6.70 0
Difference between models#			**.021**						.397						.211					
Community Matron home visit			130/15		109/14		8/2		120/14		108/13		2/1		84/13		100/10		2/1	
Community Matron at clinic			2/2		0		0		4/3		0		0		1/1		1/1		0	
Community Matron phone			17/4		33/5		1/1		57/12		26/8		4/1		41/9		17/6		3/1	
ALL **Community Matron** contacts	Mean Max	SD Min	**7.10** 44	11.39 0	**6.43** 24	7.06 0	**.50** 6	1.54 0	**10.06** 39	10.41 0	**6.70** 21	6.93 0	**.46** 6	1.66 0	**7.0** 21	6.76 0	**6.21** 21	7.25 0	**.38** 5	1.39 0
Difference between models#			**.001**						**.001**						**.003**					
Specialist Nurse home visit			26/10		19/6		111/8		20/7		28/8		0		19/5		15/3		0	
Specialist Nurse at clinic			3/1		0		10/1		0		0		1/1		1/1		0		3/3	
Specialist Nurse phone			1/1		0		0		0		0		0		13/2		0		0	
ALL **Specialist Nurse** contacts	Mean Max	SD Min	**1.43** 8	1.99 0	**.83** 9	1.99 0	**6.72** 40	10.49 0	1.11 6	1.91 0	1.40 12	2.98 0	.08 1	.28 0	1.83 24	5.60 0	.74 13	2.98 0	.23 1	.44 0
Difference between models#			.054						.091						.131					
Health Care Assistant home visit			18/8		0		3/2		49/11		1/1		1/1		21/9		2/1		1/1	
Health Care Assistant at clinic			0		0		0		0		0		0		0		0		0	
Health Care Assistant phone			0		0		0		3/2		0		0		0		0		0	
ALL **Health Care Assistant** contacts	Mean Max	SD Min	**.86** 6	1.59 0	**0** 0	0 0	**.17** 2	.51 0	**2.89** 15	3.92 0	**.05** 1	.22 0	**.08** 1	.28 0	**1.17** 7	2.04 0	**.11** 2	.46 0	**.08** 1	.28 0
Difference between models#			**.002**						**<.0005**						**.002**					

GP: General Practitioner; PN, DN, CN: Practice, District and Community Nurses

Kruskal-Wallis test

Primary / community services continued: Total contacts of all patients in group/ Number of patients accessing service (rest have 0 contacts)			T1 (baseline): 3 months before						T2: period since T1						T3: period since T2					
			Case Management N=21		Collaborative N=23		Integrated Team N=18		Case Management N=18		Collaborative N=20		Integrated Team N=13		Case Management N=18		Collaborative N=19		Integrated Team N=13	
Physiotherapist home visit			6/2		23/4		168/13		4/3		6/2		19/4		4/1		6/2		3/2	
Physiotherapist at clinic			0		19/3		10/1		0		24/2		0		0		0		0	
Physiotherapist phone			0		0		0		0		0		0		0		0		0	
ALL Physiotherapist contacts	Mean	SD	**.29**	1.10	**1.83**	3.7	**9.89**	10.47	.22	.55	1.50	4.20	1.46	2.99	.22	.94	.32	.95	.23	.60
	Max	Min	5	0	13	0	28	0	2	0	18	0	10	0	4	0	4	0	2	0
Difference between models#			**<.0005**						.547						.637					
Therapy technician home visit			0		6/1		94/6		0		3/1		0		0		3/1		0	
Therapy technician at clinic			0		0		10/1		0		0		0		0		0		0	
Therapy technician phone			0		0		3/1		0		0		0		0		0		0	
ALL Therapy Technician contacts	Mean	SD	**0**	0	**.26**	1.25	**5.94**	9.87	0	0	.15	.68	0	0	0	0	.16	.69	0	0
	Max	Min	0	0	6	0	30	0	0	0	3	0	0	0	0	0	3	0	0	0
Difference between models#			**<.0005**						.461						.442					
Occupational Therapist home visit			0		6/4		121/8		2/2		6/5		13/2		2/2		3/2		1/1	
Occupational Therapist at clinic			0		0		0		0		0		0		0		0		0	
Occupational Therapist phone			0		0		0		0		0		0		0		0		1/1	
ALL Occupational Therapist contacts	Mean	SD	**0**	0	**.26**	.62	**6.72**	10.19	.11	.32	.30	.57	1.0	2.83	.11	.32	.16	.50	.15	.38
	Max	Min	0	0	2	0	28	0	1	0	2	0	10	0	1	0	2	0	1	0
Difference between models#			**.001**						.549						.926					
SLT home visit			0		0		0		0		0		0		0		0		1/1	
SLT at clinic			0		0		6/1		0		0		0		0		0		0	
SLT phone			0		0		0		0		0		0		0		0		0	
ALL SLT contacts	Mean	SD	0	0	0	0	.33	1.41	0	0	0	0	0	0	0	0	0	0	.08	.28
	Max	Min	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	1	0
Difference between models#			.295						1.00						.241					
Dietician home visit			0		3/1		0		0		4/2		0		0		0		0	
Dietician at clinic			0		0		0		0		0		0		0		0		0	
Dietician phone			0		0		0		0		0		0		0		0		0	
ALL Dietician contacts	Mean	SD	0	0	.17	.65	0	0	0	0	.20	.62	0	0	0	0	0	0	0	0
	Max	Min	0	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Difference between models#			.178						.206						1.00					

SLT: Speech and Language; MH: Mental Health

Kruskal-Wallis test

Primary / community services continued: Total contacts of all patients in group/ Number of patients accessing service (rest have 0 contacts)			**T1 (baseline): 3 months before**						**T2: period since T1**						**T3: period since T2**					
			Case Management N=21		**Collaborative N=23**		**Integrated Team N=18**		**Case Management N=18**		**Collaborative N=20**		**Integrated Team N=13**		**Case Management N=18**		**Collaborative N=19**		**Integrated Team N=13**	
Intermediate Care home visit			31/1		0		0		14/1		21/1		0		84/1		21/1		0	
Intermediate Care at clinic			0		0		0		0		0		0		0		0		0	
Intermediate Care phone			0		0		0		0		0		0		0		0		0	
ALL **Intermediate Care** contacts	Mean	SD	1.48	6.76	0	0	0	0	.78	3.30	1.05	4.70	0	0	4.67	19.80	1.11	4.82	0	0
	Max	Min	31	0	0	0	0	0	14	0	21	0	0	0	84	0	21	0	0	0
Difference between models#			.377						.704						.697					
Chiropodist home visit			6/3		6/3		1/1		6/3		2/1		2/1		6/3		5/3		1/1	
Chiropodist at clinic			4/4		2/1		7/2		5/4		2/1		8/2		5/3		2/1		3/1	
Chiropodist phone			0		0		0		0		0		0		0		0		0	
ALL **Chiropodist** contacts	Mean	SD	.48	.75	.35	.71	.44	1.42	.61	.85	.20	.62	.77	1.74	.61	.85	.37	.76	.31	.63
	Max	Min	2	0	2	0	6	0	2	0	2	0	6	0	2	0	2	0	2	0
Difference between models#			.497						.167						.454					
MH consultant home visit			0		2/1		0		0		1/1		0		0		0		0	
MH consultant at clinic			0		0		1/1		0		0		6/3		0		0		3/2	
MH consultant phone			0		0		0		0		0		0		0		0		0	
ALL **MH consultant** contacts	Mean	SD	0	0	.09	.42	.06	.24	**0**	0	**.05**	.22	**.46**	1.13	**0**	0	**0**	0	**.23**	.60
	Max	Min	0	0	2	0	1	0	0	0	1	0	4	0	0	0	0	0	2	0
Difference between models#			.584						**.052**						**.055**					

Notes: Pharmacists excluded because information was missing for >60% of participants. Dentist and optician contacts were reported infrequently: an average of 4 participants (across all models) reported single use of dentist and optician in each time period. Other (unclassified) professionals or services were reported by 1 participants at T1 (2 hone visits), 3 participants at T3 (2 having one home visit each and 1 reporting 38 clinic visits)

Kruskal-Wallis test

2. Hospital services: Total contacts of all patients in group/ Number of patients accessing service (rest have 0 contacts)			**T1 (baseline): 3 months before**						**T2: period since T1**						**T3: period since T2**					
			Case Management N=21		**Collaborative N=23**		**Integrated Team N=18**		**Case Management N=18**		**Collaborative N=20**		**Integrated Team N=13**		**Case Management N=18**		**Collaborative N=19**		**Integrated Team N=13**	
Hospital	**Outpatient**		22/9		54/10		17/7		18/7		29/10		22/8		14/7		28/10		19/6	
	Mean	SD	1.05	1.94	2.36	6.85	.94	1.76	1.00	1.72	1.47	2.99	1.46	2.07	.78	1.31	1.47	2.99	1.48	2.07
	Max	Min	8	0	33	0	1	0	6	0	15	0	6	0	5	0	13	0	6	0
	Difference between models#		.923						.319						.670					
	Day hospital		0		0		0		0		0		0		14/1		4/1		0	
	Mean	SD	0	0	0	0	0	0	0	0	0	0	0	0	.78	3.30	.21	.92	0	0
	Max	Min	0	0	0	0	0	0	0	0	0	0	0	0	14	0	4	0	0	0
	Difference between models#		1.00						1.00						.697					
	A&E		11/9		2/2		4/4		11/6		2/2		0		9/4		9/4		0	
	Mean	SD	**.52**	.75	**.09**	.29	**.22**	.43	**.61**	1.24	**.47**	1.07	**0**	0	.50	1.15	.47	1.07	0	0
	Max	Min	3	0	1	0	1	0	5	0	4	0	0	0	4	0	4	0	0	0
	Difference between models#		**.028**						**.027**						.196					
	Physiotherapist		0		10/1		0		0		0		12/1		0		0		15/2	
	Mean	SD	0	0	.43	2.08	0	0	0	0	0	0	1.15	3.36	**0**	0	**0**	0	**1.15**	3.36
	Max	Min	0	0	10	0	0	0	0	0	0	0	12	0	0	0	0	0	12	0
	Difference between models#		.428						.232						**.055**					
	Inpatient episodes		10/10		10/7		9/9		13/7		7/3		4/3		7/5		8/5		2/2	
	Mean	SD	.48	.51	.48	.95	.50	.51	.72	1.32	.47	.91	.15	.38	.39	.78	.53	.91	.15	.38
	Max	Min	1	0	4	0	1	0	5	0	3	0	1	0	3	0	3	0	1	0
	Difference between models#		.563						.291						.501					
	Inpatient nights		137/11		82/7		151/9		78/7		154/3		10/3		48/5		115/5		3/2	
	Mean	SD	5.86	10.51	3.57	7.06	8.39	12.49	4.33	7.48	6.26	16.21	.23	.60	2.67	6.43	6.63	16.14	.23	.60
	Max	Min	44	0	27	0	40	0	22	0	57	0	2	0	26	0	57	0	2	0
	Difference between models#		.376						.273						.409					

Kruskal-Wallis test

3. Social and Voluntary services: Total contacts of all patients in group/ Number of patients accessing service (rest have 0 contacts)			T1 (baseline): 3 months before						T2: period since T1						T3: period since T2					
			Case Management N=21		Collaborative N=23		Integrated Team N=18		Case Management N=18		Collaborative N=20		Integrated Team N=13		Case Management N=18		Collaborative N=19		Integrated Team N=13	
Social	**Social worker**		1/1		2/2		6/5		1/1		3/3		3/3		6/6		4/2		0	
	Mean Max	SD Min	.10 1	.30 0	.09 1	.29 0	.33 2	.59 0	.06 1	.24 0	.47 3	1.02 0	0 0	0 0	.33 1	.47 0	.47 3	1.02 0	0 0	0 0
	Difference between models#		.155						.375						.098					
	Meals on wheels		0		84/1		0		0		139/1		0		0		148/1		0	
	Mean Max	SD Min	0 0	0 0	3.65 89	17.51 0	0 0	0 0	0 0	0 0	7.79 148	33.9 0	0 0	0 0	0 0	0 0	7.8 148	33.9 0	0 0	0 0
	Difference between models#		.428						.461						.442					
	Day centre		12/1		30/1		12/1		7/2		55/2		20/1		13/2		48/1		20/1	
	Mean Max	SD Min	.57 12	2.62 0	1.65 30	6.40 0	.67 12	2.83 0	.39 6	1.42 0	2.53 48	11.0 0	1.54 20	5.55 0	.72 12	2.82 0	2.5 48	11.01 0	1.54 20	5.55 0
	Difference between models#		.857						.967						.853					
	Paid care assistant <u>per week</u>		91/7		201/13		161/8		91/7		(N=19) 148/10		91/5		(N=17) 77/5		(N=17) 118/9		84/5	
	Mean Max <u>**Whole period**</u>	SD Min	56.33 364	97.49 0	118.5 364	133.2 0	116.3 364	145.8 0	107.1 600	172.1 0	153.8 564	189.7 0	109.1 484	159.1 0	82.3 508	146.7 0	153.8 564	189.7 0	109.1 484	159.1 0
	Difference between models#		.201						.679						.352					
Voluntary	**Crossroads , sitter service**		63/3		12/1		0		6/1		16/1		0		12/1		8/1		0	
	Mean Max	SD Min	3.00 39	9.00 0	.52 12	2.50 0	0 0	0 0	.33 6	1.41 0	.42 8	1.83 0	0 0	0 0	.67 12	2.83 0	.42 8	.84 0	0 0	0 0
	Difference between models#		.171						.704						.697					

Kruskal-Wallis test

Private service use: 3 patients reported a single private podiatry session; 5 (all in integrated team model) reported weekly private physiotherapy (1 in T1, and 2 in T2 and T3)