Title: Improving community health networks for people with severe mental illness: a case study investigation

Summary: People with severe mental illness (SMI) benefit from participation in creative and physical activities and from social inclusion in mainstream society. Primary and community care services provide some of these opportunities and others are derived from a persons' wider social capital resources and social networks. This study assesses how organisations, practitioners and individual service users make or fail to make use of existing networks, how they create new ones and to what extent and under what circumstances these provide health benefits. It aims to identify best practice and produce guidance as to how networks of "health opportunities" for people with SMI can be initiated and developed in the community. Detailed case studies of the nature of networks, current practices and individual experiences, both service user and practitioner, will be generated through a five module research process in two contrasting sites (Hammersmith and Fulham in London and South Devon). The social networks of 150 service users will be investigated and analysed using UCINET software and 40 in-depth interviews. Practitioner interviews will explore the linking role held by practitioners between organisations and the individuals in their care. The emergent findings will be discussed with a network of advisors to explore the wider applicability of the generated community health network model. Research teams based in two sites will guide the project and the employment of service user researchers ensure active stakeholder involvement throughout. The resultant guidance will be of use to primary care and mental health services, local authorities and third sector organisations tasked by 'New Horizons' to work together for the well-being of people with mental illness.

1. Aims and objectives

The study incorporates three specific objectives:

1. To map current community health networks utilised by people with severe mental illness to support their overall health and well-being
2. To identify organisational barriers and enablers in primary care and community health services to developing effective community health networks for people with severe mental illness
3. To provide recommendations for practitioner and organisational change to establish and support community health networks, which benefit people with severe mental illness

These will be explored by three main research questions:

1. How do people with SMI use their networks to support their health and well-being?
2. How do community-based practitioners and organisations support people with SMI to use their networks to effectively support their health and well-being?
3. How do primary care, community-based mental health providers and network organisations work together to develop more effective community health networks for people with SMI to improve their overall health and well-being? What are the barriers and enablers to achieving this?

This study is not addressing interface issues between primary and secondary mental health care, instead it is collating best practice solutions and an in-depth understanding of how and to what extent organisations can link together with the wider social resources of people with SMI to better promote well-being opportunities to this group. This information will contribute to the Department of Health's (DH) ongoing commitment to improve services for people with SMI leading to better outcomes for them and their families (DH: 2006a, 2009). It will also provide practical guidance to support the personalisation agenda (DH: 2008) by placing the person at the centre of efforts to encourage preventative and sustainable health behaviours through engaging directly with their networks. At a community practice and practitioner level this study will provide resources and guidance to assist staff decision making, providing people with SMI access to a wider range of health opportunities supported through more comprehensive organisational networks.

2. Background

People with severe mental illness (SMI) access a range of different health, social care and third sector services to support their mental health needs. However there has been less of a focus on how resources are accessed. Social networks, form the focus of this study because of their potential to connect individuals and organisations in order to promote better engagement and support for people with SMI. We will explore these networks by asking about their health generating properties thus producing what we are terming the 'community health network', As Pescosolido states, *"Too often we have neglected to consider that what makes people's experience in the community and treatment systems 'success' or 'failure' are intimately tied to the kind of relationships forged and maintained in those contexts" (2002, p.468).* In recent years there has been increased recognition that services must provide a 'seamless' package of care (DH: 1995, 1999, 2009). Mental health service users want to be treated holistically by practitioners, emphasising the interplay between social, cultural, economic and medical determinates of health and illness. All statutory and third sector services working with people with SMI are tasked by 'New Horizons' to enhance wellbeing. Practitioners, as well as forming

part of individuals' networks, have a role to facilitate the development of networks beyond the 'service world' of specialist mental health services. Primary care could lead the way by innovatively supporting new ways to achieve these goals, linking up networks across the community and innovating to promote better health and social inclusion outcomes.

2.1 Health and social inequalities

There are currently vast health inequalities between mental health service users and the general population (Disability Rights Commission, 2006) and these inequalities can not be explained by mental health problems alone (Samele, 2004). The link between mental illness and poor physical health has long been established (Phelan et al., 2001, 2004, Osborn, 2001, Folsom et al., 2007). Most mental health problems are associated with an increased mortality (Harris & Barraclough, 1998). However, service users have expressed concern about the quality of GP services for people with SMI, with surveys showing poor understanding of people's needs (Rethink, 2003). The delayed identification of physical illnesses which result increases the likelihood of conditions becoming chronic and requiring complex and costly NHS treatment (DH, 2006b). Health checks in general practice for people with SMI, linked to financial incentives through the Quality Outcomes Framework (QOF), are only one part of the solution.

In recent years, the study of social networks as both a concept and strategy for managing mental health problems overlaps with research into social exclusion (Webber and Huxley 2004), social inclusion (Sayce 2001; Morgan et al 2007) and social capital (McKenzie et al 2002; De Silva 2006). In the UK, there is official recognition of the particularly disadvantaged position of people with mental health problems using a range of indicators (SEU 2004). As mental well-being is associated with individual better social and economic outcomes (Friedli 2009), enhancing the access of people with SMI to social resources may make a contribution to narrowing social inequalities (Webber, 2008).

2.2 The role of networks

The study of networks aims to understand the complexity and heterogeneity of interactions in order to explain differences in outcomes for individuals, groups and organisations (Borgatti et al, 2009). It is underpinned by theories to understand the importance of relationships (flows, relations interactions) and structures (position, cohesion, connectedness, power and centrality). In his classic text Mitchell (1969) defined a social network as: "a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behaviour of the persons involved". Social relationships, interactions and organisational links form the networks that are important sources of support for people with SMI, impacting upon both physical and mental health (Berkman, 1995). They provide 'opportunity structures' for people with disability to manage relationships and social supports (Forrester-Jones et al., 2006) but evidence about the effect of features of social networks, such as size, density and frequency of contact, on mental health, is not consistent (Lin and Peek, 1999).

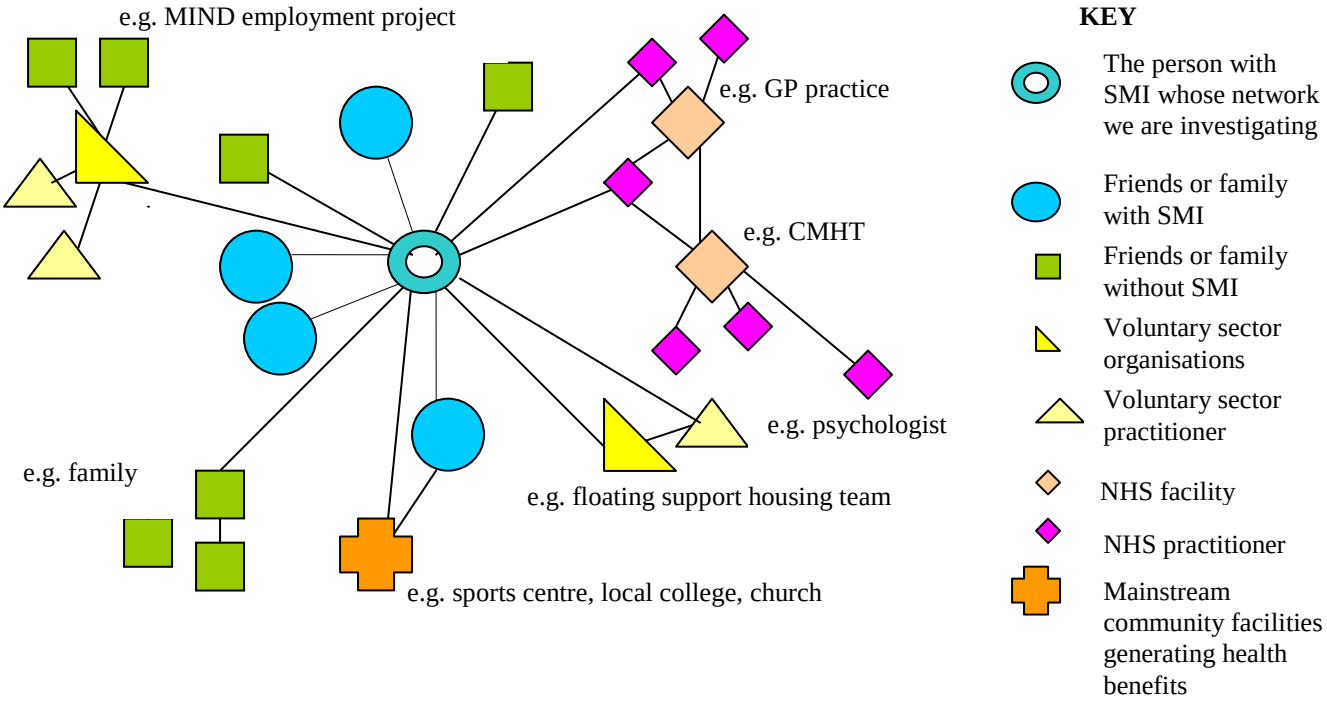
A network method allows a study of the complex relationships of people who are living with SMI. The notions of community, solidarity, inclusion, reciprocity, trust, boundary work are all relevant in defining a network form. In this study we are using the term *community health networks* rather than social networks in order to emphasise the ability of a network to generate health opportunities. This term provides an analytical framework to describe both the linkages between *people* (their role and quality of relationships – bonding, bridging and linking), *organisations* and *wider community resources* (such at virtual contacts or use of open spaces) and also the properties that make up the health opportunities on offer to people with SMI. This is a deliberately broad definition which will help identify the relevant networks and flow of resources which span traditional health services as well as community facilities and informal resources such as family and friends. In effect each individual has a network which includes links to other individuals (friends, practitioners) and also to organisations or institutions (health or leisure centre). A particular concern for this study is how individuals' different social resources – manifested as specific relationships – are joined up and interlink with organisational networks (often mediated by individual practitioners) to deliver improved health outcomes. Figure 1 depicts the network of one hypothetical individual with SMI. The study will use a network methodology to explore health benefits generated and or lost across the network, network connectedness, nature and quality of relationships, health and social outcomes, and productivity across the network to assess how they might be improved.

The concept of social capital can contribute to our understanding of how social networks facilitate or hinder individuals' or groups' access to resources from other individuals, groups or organisations. Social capital is concerned with the structure and resourcefulness of the network in terms of emotional, instrumental and informational assistance (Song and Lin, 2009: 151). Lin (2001) suggests that individuals can anticipate returns from their investment in social capital through different mechanisms, which may improve their mental well being. Social capital research in the tradition of Putnam (1993) makes distinctions between different types of social relationships or interactions: 'bonding' (intragroup relationships, e.g. with families and friends), 'bridging' (intergroup relationships, e.g. with mainstream community facilities) and 'linking' (formal or institutionalized interactions, e.g. with traditional health and social care services)

(Derose and Varda, 2009; Szreter and Woolcock, 2004). These distinctions may facilitate our understanding of how community health networks support people with SMI and we use them as a framework in this proposal.

Network mapping is complicated. Experiential maps and perceptions are in constant flux, particularly for people with SMI, and community health networks are also dynamic and changing. Equally we acknowledge that objective mapping of people's connections may hold a risk of normative judgements being made at the individual level about 'good' and 'bad' networks; we propose instead to utilise the individual with SMI's perception of benefit in our analysis of what makes an optimal network. We will use a layered approach to understanding their networks building on information about contacts and linkages, to understanding the health generating properties of the 'social network'. This will simplify and focus the task making the process manageable for people with SMI.

Figure one: A community health network for one person with SMI



2.3 Health benefits in networks

Research has shown the potential benefits for people with SMI of accessing wider health networks (Bird, 2000) including community exercise therapy (Daley, 2002), smoking cessation programmes (Addington et al., 1998) and health promotion networks such as the 'Lets Get Physical' programme in Plymouth (Byng, 2007). By facilitating relationships and trust between health care providers and marginalised people, community organisations can improve access to services. In particular, close collaboration between providers and community organisations (linking ties) can offer protection from potential discrimination and better accountability for treatment quality (Derose, Duan and Fox, 2002). Focusing on a networks approach to understand holistic health and social needs is particularly important for people with mental health problems – whose health require attention to the social as well as the medical. Social approaches are rarely used formally in primary care despite wide recognition of their importance and a high level of support for social approaches to mental health care: "Employment, housing and a strong social network are as important to a person's mental health as the treatment they receive" (Appleby, 2007).

In summary, a networks' perspective will ensure informal resources (including family support, online communities and self management) are mapped alongside statutory supports (including primary, secondary mental health and social care) and mainstream opportunities (e.g. leisure, sport, education), to provide a fuller view of how agencies and individuals can better interconnect to improve well-being (mental, physical and social).

2.3 NHS policy changes

Primary care practitioners and those in service users' wider health networks are an important part of recovery pathways for people with SMI. The great majority (90%) of people with SMI are seen in primary care, with a GP consultation rate of 13-14 times per year compared to 3-4 for the general population (DH, 2006b). Recent changes in health policy with

regard to CPA may leave many more people discharged from secondary providers to primary care services. However, there has been little research to date understanding how current health structures enable or hinder health seeking behaviour of people with SMI. The role of primary and community health services in the development of networks of support for people with SMI is currently uncharted.

The policy landscape shaping the provision of health and social care is changing. In recent years there has been a drive toward empowering the individual service user to have greater influence in decisions governing their care and treatment. This includes the introduction of CPA care planning and extends to the current personalisation agenda with the piloting of individual budgets (IBSEN, 2008). The Department of Health describes how: "every person who receives support, whether provided by statutory services or funded by themselves, will have choice and control over the shape of that support in all care settings" (DH, 2008). This vision is reinforced in the New Horizons strategy (DH, 2009). To make the most of this policy shift, people with SMI need to be able to access a wide range of resources in the community. Through network mapping this project will provide the NHS and social care with a clear understanding of how organisations and individuals can interconnect to achieve better outcomes for people with SMI. It will identify network areas to develop, between individuals, individuals and organisations, and between different organisations as well.

3. Need

This study is required because currently morbidity levels for people with SMI are unacceptably high, and the life expectancy gap between people with SMI and general population that is not closing (Saha and McGrath, 2007). We know people with SMI die on average 10 years younger than the general population (DRC, 2006). Health inequalities in terms of rates of heart disease, stroke, obesity, diabetes are all linked to SMI (Brown, 1997; DH, 2006a). Alongside statistics for poor physical health are data revealing high levels of stigma and discrimination, poor social inclusion and poverty among people with SMI (Thornicroft et al 2009). Despite the impact of mental illness on service users and their families, there is a scarcity of easy to implement solutions to tackle health inequalities for this vulnerable population. We will generate highly useful data of *long lasting relevance* because government policy continues to encourage the integration of service provision and the social inclusion of marginalised groups. In support of the wider personalisation agenda, our study will contribute to developing strategies for more effective engagement of people's different social resources in organisational approaches to promote health and wellbeing. We will identify successful ways of working and encourage uptake of these solutions. Our study links to the SDO objectives of developing an evidence base on the provision of primary and secondary community health services and parallel programmes concerned with access to health services and integrated health services. At the heart of the project are community organisations tasked to deliver services to people with SMI. We will show how these organisations can link together more efficiently and work with individuals to achieve better outcomes for people with SMI and their families.

4. Methods

The whole research will include the following components:

- **A.** *Engagement and joint working in two sites*
- **B.** *Data Collection*
    1. Literature and Policy review
    2. Organisational: Semi-structured interviews with leads and stakeholders
       Structured interviews to capture practitioner experiences
    3. Individual: Structured interviews with individuals living with SMI
       Semi-structured in-depth interviews with individuals with SMI
- **C.** *Analysis*:
    1. Analysis of 1-3 above
    2. Synthesis and development of recommendations
- **D**.
- **E.** *Dissemination*

4.1 Research methodology

A mixed methods framework has been chosen for this study within a case study design (Gerring, 2007; Yin, 2002). Two case studies will be produced analysing information collected using a range of different techniques. Adopting an integrated mixed-method design (Moran-Ellis et al. 2006) ensures that structural and organisational description of detailed network patterns can be analytically linked to in-depth insight into lived experiences and the negotiation of relationships (Csordas 1994, 2002). While quantitative methods provide insight into general patterns and connections, qualitative research into experience is essential in order to capture the messiness and the inherent contradictions that are the reality of daily life (Jackson 1996). The integrated approach allows findings from the different methods to be used as complementary within an overall interpretive analytic framework (Moran-Ellis et al. 2006). In order that the study

produces information directly relevant to NHS management, we will include engagement and feedback elements across the study and explore the applicability of our findings in a third locality.

The case study approach situates the research within two specific environments subject to particular local organisations of healthcare delivery. The methodological rationale will be drawn from Pawson and Tilley's (1997) framework for realistic evaluation. This emphasises an understanding of mechanisms operating in specific contexts, which create outcomes. Particular attention is drawn to what is working for whom, according to the stakeholders involved. In our case, this approach will be applied to the two sites, generating conclusions about each, but also permitting comparisons to be made. Current challenges or solutions will be cross referred between sites to promote shared learning. The analytical method will, by reducing qualitative data into context-mechanism-outcome matrices and setting it beside quantitative findings, generate provisional theories about which mechanisms for promoting optimal networks are more likely to be effective (Byng et al 2008). It will also allow inferences to be made about which contexts are important (or not) in promoting better outcomes. "Optimal" will be defined by service users perceptions rather than objective measures of well being. In addition, by subsequently involving a third site in the project, we will be able to assess whether the experiences emerging from the detailed case studies can be applied in another locality.

The two-year study will ensure that both organisational and individual level practices are captured in detail with timely feedback to NHS managers, practitioners and service user / carer stakeholders based upon stakeholder knowledge and experiences. The feedback mechanisms are central within the study design ensuring that information gathered can be clarified and shared regularly with key decision makers and service users, in an approach similar to action research methodology (Elsey and Lathlean 2006). Individuals' networks will be considered using the following framework:

- Bonding: Personal contacts (friends, family)
- Bridging: Informal community groups (leisure, walking groups, self help groups)
- Linking: Statutory services (health and social care, primary care, community mental health, pharmacies); Third sector (mental health providers, other e.g. CAB, carer organisations); Other statutory (education, etc)

A final aspect of our methodology that needs highlighting is the employment of service user involvement researchers (IR). We will appoint two IRs per site to assist the research team with specific tasks such as running the engagement and feedback events locally, producing study materials that people with SMI will understand and benefit from and have an integral role in the analysis of module 3B data through a series of analysis workshops. The study will thus benefit from the expertise of people with lived experiences who are likely to be better able to identify and critically examine subtle points or differences that may make all the difference in the lives of individuals experiencing SMI (Beresford, 2003).

4.2 Research design

4.2.1 Data collection framework

There are five study components, organised in three modules, running in parallel across two sites:

1. Literature and policy review
2. Organisational:
    a. Semi structured interviews with leads and stakeholders
    b. Exploring the practitioner role in creating and supporting community health networks
3. Individual:
    a. Structured interviews with service users living with SMI
    b. Semi-structured in-depth interviews with service users living with SMI

4.2.2 Study sites

The choice of the two main sites, one in Central London and the other a rural area, reflects geographical variation, differences in deprivation levels and service configurations. We anticipate that there will be differences in the structure, configuration and size of community health networks between these two sites. While the sites will not be representative of PCTs across England, they will enable us to look in detail at process mechanisms allowing analytic generalisations to be made (Yin, 2002). The health and social care partners in these sites are willing to engage with the study and are committed to make changes based upon study findings.

The first is Hammersmith and Fulham PCT, inner city London, which has fully integrated health and social service provision. There are 30 GP practices and the Quality Outcomes Framework (QOF) data for 2008/09 showed 1589 people out of 1754 (91%) on the SMI register had a health check in the 15 months previously. SMI prevalence in Hammersmith and Fulham PCT is 1%. The second site is NHS Devon (Devon PCT) with 107 GP practices. QOF 2008/09 showed 3376 people out of 4007 (84%) on the SMI register had a health check in the 15 months previously. We

will work with a sub-sample of practices in South Devon covering a rural area with small towns, where care for people with SMI is also provided by the Devon Partnership Trust. South and West Devon is one of 4 localities in Devon and incorporates the access and wellbeing network which liaises with GPs and supports care for people with psychosis but discharged to primary care. SMI prevalence across Devon PCT is 0.7%. Our third site, where we will explore the applicability of study findings in a third context, is Plymouth, which is a unitary local authority with a co-located Primary Care Trust. NHS Plymouth commissions local health care and the provider arm includes specialist mental health services. There are 44 GP practices in Plymouth, QOF 2008/09 showed 1336 people out of 1887 (71%) on the SMI register had a health check in the 15 months previously. SMI prevalence in Plymouth PCT is 0.7%.

4.2.3 Target population

The study is focused upon people with SMI, defined broadly to include people with schizophrenia, schizo-affective disorder, other chronic psychosis, bi-polar disorder, but excluding personality disorder. This broad definition is selected to ground this study in a clinically relevant 'real world' population rather than a narrowly defined research population. We are interested in chronically ill people with SMI and therefore the study entry criteria will include those in contact with secondary services for at least one year or having ongoing mental health problems seen in primary care of at least two years duration. We are excluding personality disorder without psychosis because their needs differ and would constitute a project in its own right. Also these patients are not included on SMI registers held by primary care practices which we will use as our sampling framework.

4.3 Data collection

4.3.1 Module 1: Policy and literature review (months 1-6, 13-14, 21-22)

The first module of the study (during months 1-6) will involve a review of relevant literature and policy documents. Policies will be scrutinized to ensure that this study is placed in context of the changes affecting primary and secondary community health care. The literature review will be conducted with the intention of establishing both additional assumptions and detailed sub-questions of relevance to this project. These assumptions and sub-questions can be conceptualised as a prototype model for how networks should operate. The model will be utilised to inform data collection, and provide a starting point for analysis in each subsequent module as empirical findings will confirm or call into question basic assumptions in the model and lead to incremental revisions. Local documents in the two study sites as well as national policy briefings will be identified systematically through on-line search engines and the engagement events and Advisory Network (AN) / Local Forums. Research papers will be identified using on-line search engines (e.g. medline, psych info) and detailed manual scrutiny of reference lists from identified papers. Authors will be contacted if necessary and we plan to utilise the membership of the AN and their networks of contacts to assist with this phase. During the final analysis of our study data, the literature will be updated, so that conclusions and recommendations from our study can be linked to evidence emerging elsewhere. This module will be led by the project coordinator with input from the two study research officers.

4.3.2 Module 2A: Semi-structured interviews with leads and stakeholders (months 1-8)

The aim of this module is to understand the broad context and specific operational working of community health networks for people with SMI in two study sites. In doing this we will begin to generate data in order to answer our 3 core study questions. Interviews with 12 participants per site (24 in total) will be carried out in the first few months of the project to gather contextual information on the organisation of services, and provision of support to people with SMI locally. The recruitment sample will be informed locally using a social capital framework (bonding, bridging, linking contacts). The interviews will seek to understand:

- How local organisations work with individuals to coordinate holistic service delivery to meet the needs of people with SMI in the community
- How service providers consider and make active use of the individual networks of people when determining their support and treatment needs
- How organisations work together as a network to ensure seamless care and promote additional well-being opportunities for people with SMI

An interview guide will be developed by the research team and interviews will be carried out by study research officers. Interviews will be audio-recorded and transcribed in full by the study research officers before undertaking a broad thematic analysis. This module will identify key organisations, particularly mainstream facilities not specifically designed for people with mental health problems, which may not be listed in local resource directories. Based on these data a list of local organisations will be included in the on-line survey (see below).

Towards the end of the study (from month 18) we will carry out a second series of interviews with stakeholders to feedback data from our quantitative analysis of both the organisation survey (module 2B) and individual network interviews (module 3A). These interviews will explore the findings from our analysis and generate ideas for new ways of working to address observed patterns in the networks. We again aim to interview 12 participants per site by telephone.

4.3.3 Module 2B: Practitioner interviews (months 7-17)

The aim of module 2B is to collect a cross representation of practitioner views to explore the role of practitioners within the community health networks of people with SMI.

The interviews will provide a 'data bridge' between our organisational contextual perspective gathered from stakeholders (in module 2A) and the detailed perspectives from individuals whose community health networks are mapped (modules 3A and 3B).

We will specifically explore:

:

- How practitioners themselves seek to support people with SMI to generate opportunities to improve overall health and well-being
- The barriers and enabling influences to generating better organisational practices and better individual outcomes

The sample

We will interview over the telephone 40 health and social care practitioners (20 per site). The sample will be constructed to ensure we cover roles that individuals identify as important in their network through module 3A. These are likely to be general practitioners, psychiatrists, care coordinators and a wider network of people providing 'support' such as returning to work or volunteering, physical health, self-care. We will ensure specialist teams such as early intervention are covered (if mentioned by individuals in module 3A) and that the voluntary sector providers are also included. We will not be covering informal support such as family carers.

Interviews
We will interview by telephone 40 practitioners for 20-30 minutes. We need to keep the interviews focused and with staff who have busy schedules 30 minutes is most likely to provide us with a reasonable response rate (we estimate 50%) in a short timescale – we will have 2 months to carry out the interviews, and 2 months to set them up. The interviews will cover the following areas:

- Practitioner – client relationship to understand how roles are established (building, bridging, linking)
- The role of the practitioner as driver and guide to change
- How important are community health network resources for client outcomes?
- Future perspective and the role of networks

The interview schedule will be co-produced with our study involvement researchers and it will be piloted before submission to REC for approval. Piloting will be important to test content, question phrasing and length. The interviews will be digitally recorded and transcribed verbatim. The sampling frame will be carefully monitored to ensure we do capture views of different health and social care practitioners and we will aim to complete 20 interviews in Hammersmith and Fulham and 20 in South Devon. Two pilot interviews will help refine the schedule. Each interviewee will be asked for permission to be sent via email a brief summary of the interview. We want to feedback our main interpretations and seek clarification on their role in building or maintaining community health networks and barriers to this. The email will consist of a series of bullet points generated by the research team and the interviewee will be asked to confirm or add information to this interpretation and return this information via email. The follow-up time requirement will be 5 minutes for each practitioner.

Analysis

We will used NVIVO software to analyse the interviews using a thematic analysis. The transcripts will be coded by two researchers and shared with the project management group before the final coding structure is agreed. The applied coding will be checked between two researchers for accuracy.

4.3.4 Module 3A: Individual structured network interviews (months 1 – 22)

Aim: to produce community health network maps from a sample of service users who experience SMI representing pathways and opportunities used to improve their health based upon established social network methodologies.

We will recruit 75 people with SMI per site, providing a total of 150 participants. Each service user will be interviewed by a study researcher using assessment tools to map their networks. Information from the following domains will be collected:

- Participants' characteristics (e.g. demographic information, basic illness history, living arrangements) will be collected from participants. We will seek cnsent to access patient diagnosis from medical records.
- Warwick-Edinburgh Well-Being Scale (Stewart-Brown et al 2009) – short version – to provide current mental well-being status
- Dartmouth Function Coop Charts (Beaufait et al 1992) to provide current physical health status
- Networks mapped using the Name Generator and Resource Generator, adapted to detail health generating network properties. Three layers of information will be collected: map all network links – people , places and activities; assess benefits generated from links; for those links and contacts generating significant health benefits explore how they were created and assess more detailed properties
- Network experiences – we will ask 5 questions to each participant to capture: network activities generating greatest health benefits for individual; how organisations facilitate or discourage links; overall satisfaction with network properties to provide optimal health benefits

Two measures will be used to provide self report physical health status information and mental well-being status. These will also provide information to explore the association between network characteristics (size, structure, interaction, function) and objective health status (both physical and mental health). To measure participants' community health networks, we will use two related measures – the Name Generator (McCallister and Fischer, 1978) and the Resource Generator-UK (Webber and Huxley, 2007). Both will be adapted to capture detail specific to examining community health networks.

The name generator approach to gathering social network data is the most valid, reliable and frequently used tool for the collection of person-centred network data (Marsden, 1990). It has also been reliably used in populations of people with SMI (e.g. Clifton et al., 2007, Pernice-Duca, 2008). The Name Generator will be supplemented with a list of questions asking participants to name organisations that they are currently in contact with (e.g. primary health care centre, secondary community mental health services, social services, third sector organisations and community facilities) and the activities they do in particular places (art classes, walking, watching TV, socialising). Participants will be asked a series of name interpreter questions about each key health benefiting network memberto elicit their connections with other network members or organisations. The individual will define what a 'key' benefit means and who this applies to across their network using a bespoke rating scale --2 to +2 (-2 very negative health impact to +2 very positive health impact). We will also assess health impact of places and activities in the network using the same scale.

The Resource Generator-UK asks participants whether or not they have access to 27 social resources within networks. The instrument has four internal domains – domestic, expert advice, personal skills and problem solving social resources – and is quick and easy to administer. Comparative data is available from primary care (Webber, 2008) and SMI (Dutt and Webber, in press, Murray et al., 2007) populations in addition to general population norms (Webber and Huxley, 2007). The instrument will be modified to assess a participant's access to resources via personal contacts (bonding), community facilities (bridging) and NHS primary or secondary care services and voluntary sector providers (linking). A new scale will also be developed and piloted to measure specific access to health, as opposed to social, resources in the community. The new scale has 16 items in the pilot. We will also include a measure of subjective value of each network link, whether bonding and bridging resources existed and whether 'linking' resources helped facilitate other links – thus capturing the components of the network created with the help of health and social care. The modified name generator and resource generators will be piloted with a small sample (n=5 from each site) to allow us to refine the questions and amend relationship categories of the resource generator, test for interview length and assess participant burden. These

measures will enable us to describe the structure of networks and the extent to which their network members are concentrated within the mental health system or linked to primary care service networks.

Sample size
Our sample size is informed by a UK study of the social networks and needs of users of mental health day services (Catty et al., 2005). This study found users of a social services day centre had larger networks, but more needs, than users of a day hospital. In our study we will need to examine comparisons regarding a number of variables and so the sample size is pragmatic, based on realistic numbers (informed by the Catty study) which will be sufficient to find subtle differences in network properties against a range of other variables. A key evaluative principle will be to understand from participant's perspectives the extent to which the health benefits derived from their networks are optimal. For example, we hypothesise that individuals with social relationships with a higher proportion of people outside of the mental health system will perceive their network as bringing greater benefits because of increased opportunities for employment, leisure, social support and access to other valuable resources that can be gained through these wider connections. If we were to divide a sample of 150 people into two equal groups of those above and below the median of a measure of subjective value of their network, we have 86.5% power to detect a hypothesised difference of 10% in the proportion of an individual's network which is comprised of other mental health service users between the group who value these contacts less (mean proportion=40%, s.d.=20) and the group who value these contacts more (mean proportion=50%, sd.=20) at the 95% significance level. This power calculation was performed in Stata v.9.2 using the command: sampsi 40 50, n1(75) sd1(20).

Sample selection and recruitment
People with SMI in both study sites will be randomly selected from the QOF SMI registers of 8-15 GP practices per site. Target recruitment is 75 people per site. We will over sample by 200%, aiming for a 25% response rate. GPs will screen lists of potential patients to be approached, removing those assessed as 'at risk' on medical grounds. Ethical approval will be required and the process assisted by local research network staff – Mental Health Research Network and/or Primary Care Research Network . Invitation letters will be sent from the Practice to attend an interview appointment with the researcher at the practice; this is a process people are used to. If contact via Practice is unsuccessful, the named community team – early intervention, CMHT, assertive outreach – will be approached and follow-up recruitment attempted. The practice/network staff will make 2 attempts to contact each randomly selected participant, first by letter and secondly by follow-up phone call Participants return an expression of interest form to the research team and full consent is collected at the interview. In addition we will directly recruit through secondary mental health care for a target of 20 interviews per site, 40 in total. MHRN CSOs will lead the recruitment, presenting to clinical teams who will send out information packs and follow-up by phone call. Participants return an expression of interest form via their key worker or directly to the study team.

Interviews
People with SMI attending the interview will be provided with information, asked if they wish to consent and interviewed then or another time if they prefer. Interviews will be in a GP surgery, other agreed public space or in Devon if requested and sanctioned by the clinical team in the service user's own home with interviewing happening in pairs. Immediately prior to the interview the patient's named key worker or GP will be informed about imminent interview and asked to inform researcher of any relevant 'risk' information. The Lone Worker Policy and 'buddy system' designed by the Primary Care Research Group will be adopted by the study's researchers. It will also alert them that they will be contacted if the patient becomes distressed as a result of taking part in the study. All information will be recorded on data collection schedules, inputted by the research officer at a later date into Micro-soft access. It is anticipated that the interviews will last approximately two hours. They will be carried out by the study research officers, assisted by the project coordinator. Participants will be offered £20 per interview for taking part.

Analysis
UCINET (Borgatti et al 1999) has been selected for the social network analysis as it is a comprehensive and widely used package capable of analysing both ego-centred and whole networks. It has been particularly widely used in the analysis of primary care and health networks (e.g. Fattore et al 2009, Scott et al 2005, Weeks et al 2002). It has been chosen in preference to other social network analysis tools because its diverse authorship, encompassing a range of mathematical and methodological expertise, ensures that the program can undertake multiple operations both proficiently and efficiently. Visualisations of networks will be undertaken using NetDraw, a program integrated within UCINET.

We will address a range of questions including:

1. What makes up the community health networks of people with SMI?

We will use standard social network analysis procedures in UCINET to calculate network properties (size and density); demographic composition (mean age, % gender, % ethnicity,% within community health network); role relationships (e.g. % kin, % non-mental health service users); type of contact (bonding, bridging, linking), ego-alter characteristics (mean closeness), network activity (frequency of contact) and perceived health benefits derived from network contacts. Data will be aggregated to case study site level to facilitate inter-site comparisons.

Using NetDraw, we will make visual representations of participant's networks in both study sites to facilitate comparison. We will superimpose this with the local organisations providing services to people with SMI obtained in modules 2A and 2B of the study. This novel approach will bring together ego networks and organisational structures to accurately depict the nature of health networks in the two study sites. To our knowledge, this has not been achieved before and will help us to fully understand the extent of 'bonding', 'bridging' and 'linking' social capital within community health networks of people with SMI.

2. What is the mix of formal and informal health care provision within people's network?

We are interested in who are providing health benefits – family, health professional and community resources. We will use the decomposition capability of UCINET to separate network contacts according to whether they provide formal, informal or no health care benefits. This will be analysed by visualisation and by calculation of the properties of these sub-networks as above. This process will allow us to evaluate the extent to which networks facilitate the involvement of informal contacts in formal healthcare provision.

3. Do these networks differ in composition, range, size and density across sub-groups within this population (e.g. based upon gender, ethnicity, age, disability, level of need)?

We will use univariate statistics to compare sub-groups across all network and social resource measures. We will also conduct appropriate multivariate analysis to explore predictors of network size and other network properties

4. How do network strength and breadth relate to perceived benefit and well being (SF-36)

We will conduct an exploratory multivariate analysis using perceived benefits of network contacts and well-being (SF-36) as our outcomes. A sub-set of variables from those listed below (those showing significance on univariate analysis) will be used as our sample size is small. Network measures such as size and density; demographic composition (mean age, % gender, % ethnicity,% within community health network); role relationships (e.g. % kin, % non-mental health service users); ego-alter characteristics (mean closeness), network activity (frequency of contact) and source of network contacts would be entered sequentially into a regression model to identify which network characteristics are associated with perceived benefit of network and objective well being.

4.3.5 Module 3B: Individual network semi-structured in-depth interviews (months 6-22)

The aim is to deconstruct the concept of a community health network and unpack meaning for each participant so that we can understand the significance of different types of contact and barriers to health seeking behaviours, as well as the dynamic inherent in each network's configuration. We will determine how people with SMI have created and accessed their useful networks, and what actions of their own, or of others has contributed to the development of a network of health opportunities, thus furthering our understanding of the mechanisms at work in the community. This will inform future work by professional helpers and also indicate possible avenues for intervention research.

To supplement the detailed network data collected in 3A, we will interview 20 service users per site, providing a total of 40 in depth interviews with people with SMI. The data gathered in module 3A will provide a starting point for the interviews: in keeping with a realistic evaluation framework, the reasons behind either positive or negative network components will be explored in the interviews:

- How do identified social resources and relationships impact (positively as well as negatively) on the health and wellbeing of people with SMI?
- How do people with SMI actively make use of or access particular social resources within their network to support their health and well-being?
- How have the health and social care practitioners in their networks contributed to supporting the creation of wider beneficial networks?
- What kind of reciprocity exists and how does contributing to others influence wellbeing in terms of burden and benefit?
- How could practitioners reduce barriers and encourage growth of strong user centred networks in local communities?

Sample selection and recruitment
Participants for the qualitative interviews will be recruited directly from the structured network interviews in module 3A. Potential participants will be asked if they would like to continue for a further 30-45 minutes to answer some more detailed questions as follow-up. They will have the option to do this following a short break, or arrange a new appointment for the in-depth interview. This approach will give us an optimal response rate and allow the in-depth interview to benefit from the relationship already established between participant and researcher. In each site the first 10 participants will be a convenience sample based on time available and participants' expressed interest in taking part. The other half of the sample will be purposive and selected based on emerging findings to ensure inclusion of maximum variation both in terms of participants' profile (gender, ethnicity, living arrangements, disabilities: physical and mental health) and network composition (e.g. small vs. large, mostly professional vs. mostly personal). The research officer will have a list of prioritised factors to look out for in the profile and the first person interviewed during module 3A to meet these will be invited for the follow-up qualitative interview. The procedure is continued until the total of 20 in-depth interviews in each site has been reached. It is not anticipated that saturation will be achieved.

Analysis
The 40 interviews will be fully transcribed verbatim and be subject to thematic analysis by the research officers and involvement researchers. The in-depth data will allow a detailed examination of the subjective importance of individual relationships and how these fit into the wider structure of a network. It will be possible to explore how perceptions of different contact types (bonding, bridging, linking) relate to the role relationship, and the background for relationships forming in particular ways. It may, for example, be that some participants perceive their relationship with a health professional as having 'bonding' or friend-like qualities – the analysis will examine the background for this and any health benefits related. The following data analysis process will be followed. Ten interviews will be completed before analysis begins (major issues related to wording and flow rather than content will be addressed earlier as required). Then, research officers and service user involvement researchers will read through the first 10 interviews individually to familiarise themselves with key issues and through a workshop discussion develop an initial coding framework. At this stage the interview schedule may be modified to systematically address key findings emerging but not initially anticipated. Another 10 interviews will be carried out before a second analysis workshop is held with research officers and service user involvement researchers bringing coded transcripts to discuss. The original coding framework will be revised and refined to capture new emerging themes or to collate themes as required. The analysis approach will address both communalities in the data and deviant cases that may challenge or contradict these. The qualitative data analysis software NVivo will be used to assist the management of data and facilitate systematic data examination.

4.3.6 Data synthesis (months 21-24)
We will bring together our data sources to provide a model of community health networks; how they work and how they provide health benefits to people with SMI. The analysis, incorporating qualitative and quantitative data, will be carried out across the two sites to develop the model. This will describe the multiple layers of connections and network qualities as well as revealing the complexity of individual experience. We will integrate this with the analysis in module 2 concerning organisational network resources. A realist driven evaluation approach will be used to explore the role and significance of different contact types and organisational resources available within different community network forms.

Synthesis of the results from each module is a critical process for ensuring that an integrated model, describing how networks can be developed to benefit people with SMI, is produced at the end of the research. The individual stages of data collection will inform each other in such a way that earlier stages provide information to shape the questions raised or sampling for later stages. Prior to this our literature review will have already developed a prototype model for how 'community health networks' can operate, whilst also incorporating key unanswered questions as to how organisations should operate and individuals (practitioners and people with SMI) might best behave to optimise the benefits.

Synthesis involves incorporating levels of detail from organisational practices down to individual interactions, emotions and behaviours. The data are multi-dimensional with each component explaining a part of a bigger picture that will be brought together within the analysis. Each of the two case studies provide an empirical framework for analytic integration by highlighting particular questions of local relevance that the data sources will contribute to from different perspectives. We will systematically review each of the components and levels of the prototype model and make revisions based on the evidence accrued in each site and from each module. Where possible the unanswered questions that arose in the prototype model will be addressed. Relevant qualitative data will be reduced into context-mechanism-outcome matrices and compared with quantitative data related to the same issue. The different data sources are likely to either be confirmatory (triangulation) or divergent with respect to specific issues; divergence may require further data analysis, bracketing or exclusion (Pluye et al 2009). In line with the integrated approach to multi-method analysis (Moran-Ellis et al. 2006) we will treat the multiple levels of information as supplementary within an interpretative

framework, as different parts of a bigger picture, contributing to a more comprehensive understanding of the complex phenomenon being studied. This will generate a local 'holistic picture' presented by each case study analysis. The research team will compare the two case studies to identify factors that may explain either communalities or differences specific to the local community health networks used by people with SMI in rural and urban settings. A practical guide to developing health optimising networks will be produced which will address theoretical and practice-related questions arising from the literature review work that feeds the study throughout.

4.3.7 Assessing relevance of findings

We will present our findings locally in two workshops – one in South Devon and a second in London. At these events we will invite representatives from neighbouring boroughs / regions. The aim will to be assess how transferable the practical recommendations are for other localities, and how far experiences described in the community health network model apply to individuals and organisations elsewhere. We will use these workshops to assist us in producing our practice guidance tools and resources. These events will be planned with the study involvement researchers an they will co-facilitate the two meetings.

4.4 Engagement, feedback and change (months 1 – 24)

The study's feedback elements consist of active engagement within the sites providing opportunities to communicate with stakeholder throughout the life of the programme. This is important, even during a relatively short (24 months) research project, in order to make NHS managers aware of emerging findings.

4.4.1 Engagement

A key component of the study will be engagement events, at the start to ensure local organisations are on board with the study. The aim is to both make local service providers aware of the study and to collect information to develop a database of current resources – both directly health related and associated activities such as assisted employment programmes, volunteer placement schemes, walking groups, environmental projects. Each event will be action orientated, with an exchange of information between researchers and stakeholders, discussion about barriers and facilitators, followed by decisions about how to develop the network further. These discussions will be recorded and utilised as data. Information gathered during this engagement phase will also be used to develop a recruitment framework for the practitioner survey (module 2B).

4.4.2 Feedback

Two feedback mechanisms will operate. Firstly, a blog will be produced by the five service user involvement researchers within the study alongside the research officers. These will highlight case studies of positive networking practices as well as study progress updates. Secondly, dissemination workshops will run in each site. Based on the findings from modules one to three of the study the research team will put together a set of targeted recommendations for the two PCTs which will be presented to a half-day dissemination workshop in each study site. The workshops will include presentations from the study team, local service users and local managers. The workshop would allow time to discuss and agree these initiatives. We anticipate the research will highlight some practical changes to improve practice:

- Dissemination and awareness raising of network organisations and opportunities
- 'Shadowing' of workers between organisations
- Shared events and joint activities for people with SMI
- Registration drive to encourage people with SMI to register with a GP

A guide for service users will also be produced by the study team, led by the involvement researchers, outlining how to develop both individual and to promote comprehensive community wide networks. This will be disseminated through Rethink's extensive networks to service users, practitioners and commissioners across England. A second guide for service providers will also be produced including recommended actions for clinical and practical work with individuals, and practical steps that organisations within the networks can take. We will work with Trusts and other networks to disseminate these findings widely, using new technology including blogs and social networking if recommended by our advisory network.

5. Contribution to collective research effort

The dissemination activities from this study are in two component parts. Firstly there will be ongoing feedback throughout the course of the study within the case study sites. Mechanisms for organising knowledge mobilisation across the NHS and to stakeholder groups include;

- E-newsletters coordinated by the local involvement researchers.
- Engagement meetings and feedback sessions to groups of staff at relevant meetings and events held over the two years.
- The active engagement of senior NHS managers within the study as members of the local delivery team.

Secondly there will be specific activities and products at the end of the study, collating data from the entire project. The main knowledge outputs will be:

- Final report accessible on NIHR HS&DO website
- A guide for mental health service users on developing community networks, developed in close consultation with local involvement researchers and LAN
- A practical guide for PCTs on setting up organisational networks
- Attendance at academic conferences to deliver papers from the study
- Peer review publications
- Articles in trade press such as Mental Health Today, Community Care and national press.
- We will work with Rethink Media and Campaigning teams to ensure that findings and recommendations are brought to the national political agenda. Furthermore, Rethink activists will work to promote findings and recommendations locally

6. Plan of investigation and timetable (amended September 2012)

Month	**Project manage-Ment**	**Engagement and feedback**	**Module 1: Literature / policy Review**	**Module 2: organisation and practitioner interviews**	**Module 3: Quantitative and qualitative individual network interviews**
Before project	PMG Recruit ROs Set up AG NRES	Submit R&D paperwork	Draw up parameters for literature and policy review	Identify local practitioner and SU leads	Identify potential tools for cohort study. Work with MHRN and PCRN to plan approach Agree access to SMI register
1: April 2011	PMG *RA starts in London*	PCRN and MHRN meetings Promotional materials in 2 sites.	Lit and policy review	Develop interview schedule	Engage PCRN and MHRN Apply for research passport and local approvals
2: May	PMG AG	PCRN and MHRN meetings Promotional materials in 2 sites.	Lit and policy review	REC resubmission	Work with MHRN and PCRN in set up Review tools and plan pilot
3: June	PMG Gain R& D approvals	Piloting data collection and stakeholder interviews	Lit and policy review	Identify sample (12 per site)	Pilot interview with 8-10 individuals with SMI in London and Devon
4: July	PMG *RA starts in Plymouth* First AE held	Piloting data collection and stakeholder interviews	Lit and policy review	Set up interviews	Pilot interview with 8-10 individuals with SMI in London and Devon and revise tools
5: Aug	PMG Recruit IRs	Piloting data collection and stakeholder interviews	Lit and policy review	Interviews Transcription	Continue to revise and pilot tools
6: Sept	PMG&AM Recruit IRs	Attend conferences and relevant meetings	Review report produced	Interviews Transcription	NRES resubmission minor / major ethical amendment with new tools Finalise recruitment strategy with practices

7: Oct	PMG Submit 1st progress report to NIHR HS&DO	Meet GP practices to set up recruitment processes	Update literature and policy work	Interviews Transcription	Work with PCT ICT to access QOF SMI registers in practices across case study sites Pilot recruitment process
8: Nov	PMG	Researchers attend local forums / meetings	Update literature and policy work	Interviews Transcription	Recruitment begins
9: Dec	PMG		Update literature and policy work	Coding frame developed	Recruitment continues Interviews – 2
10: Jan 2012	PMG&AM		Update literature and policy work	Coding frame developed	Recruitment continues Interviews – 10 First 5 in depth interviews
11: Feb	PMG		Update literature and policy work	Pilot coding and agreeing coding frame	Recruitment continues Interviews – 10 Transcription and coding
12: Mar	PMG Submit 2nd report to NIHR SDO	Researchers attend local forums / meetings	Update literature and policy work	NVIVO coding – two researchers Analysis meeting	Recruitment continues Interviews – 10 Transcription and coding Data base creation
13: April	PMG&AM		Update Lit and policy review	Devon lead framework analysis Funder agree practitioner interview module change	Recruitment continues Interviews – 15 Transcription and coding 1st meeting IR Preliminary network analysis Data entry
14: May	PMG		Update Lit and policy review	Develop practitioner interview schedule	Recruitment continues Interviews – 15 Data entry In-depth interviews 4 Transcription and coding
15: June	PMG	Researchers attend local forums / meetings	Update literature and policy work	Practitioner interview schedule piloted and submitted to REC Org data presented at conference.	Interviews – 20 Data entry 1st Analysis workshops with IRs
16: July	PMG&AM		Update literature and policy work		Interviews – 20 Data entry In-depth interviews 7 Transcription and coding
17: Aug	PMG		Update literature and policy	REC obtained for practitioner interview	Interviews – 20 Data entry In-depth interviews 7

			work		Network analysis Transcription and coding
18: Sept	PMG&AM Second AG	Researchers attend local forums / meetings	Update literature and policy work	2 pilot interviews complete Refine schedule Interview practitioners (6)	Preliminary network analysis 2nd Analysis workshops with IR Interviews 20
19: Oct	PMG Submit 3rd report to NIHR SDO		Update literature and policy work	Review transcriptions Interview practitioners (14)	Interviews 8 Data entry and cleaning In-depth interviews 8
20: Nov	PMG Advisory network held		Update literature and policy work	Interview practitioners (20) Review transcriptions Develop initial coding frame	Full network analysis begins IR workshop In-depth interviews 4 3rd Analysis workshops with IR
21: Dec	PMG&AM		Update Lit and policy review	Pract int coding NVIVO First Org analysis report completed Identify second round participant (12 per site)	Full network analysis Qual depth coding
22: Jan 2013	PMG		Update Lit and policy review	Pract int coding NVIVO Org interviews (12)	Full network analysis Qual depth coding
23: Feb	PMG		Update Lit and policy review	Practitioner int analysis Org interviews (12)	Full network analysis Qual depth coding
24: Mar	PMG		Update Lit and policy review	Practitioner report finalised Coding for org ints	IR workshop Review all data sources
25: Apr	PMG Final AE held	Plan dissemination events	Update Lit and policy review	Coding for org ints NVIVO	Analysis and write up – data sources combined
26: May	PMG	Set up dissemination events	Update Lit and policy review	Coding for org ints NVIVO	Analysis and write up – data sources combined
27: June	PMG	Dissemination event in Devon	Update Lit and policy review	Write up framework analysis	Final report prepared Paper outputs
28: July	PMG	Dissemination event in London	Update Lit and policy review	Write up framework analysis	Final report prepared Paper outputs
29: Aug	PMG	Write up the events		Organisation report finalised	Final report finalised Write user guide to community

					health networks Prepare papers for publication and output guides
30: Sept	PMG	Researchers attend local forums / mtgs			Prepare papers for publication and output guides

Key: PMG = project management group – which will combine with analysis meetings bi-monthly (PMG&AM); AE= Advisory event; RO = research officers; IR = involvement researchers

7. Ethics

Ethical approval will be sought from NRES for this project prior to the project commencing once grant funding has been confirmed. R&D approval from our two main case study sites (NHS Devon and Hammersmith and Fulham PCT), as well as Plymouth PCT, will also be obtained within the first 3 months of the project. We have carefully considered the ethical issues that may be raised in conducting this research project with a vulnerable group of participants. In this section we outline the main points to be considered.

7.1 Informed consent

The issue of obtaining informed consent is particularly important when working with a vulnerable group of participants. Potential participants will be randomly selected from GP SMI registers across the two case study sites. GPs will be asked to de-select individuals whom they believe would be too unwell to take part, or to pass this opt-in process to members of the mental health community team if GPs feel unable to make this assessment. Having established a sampling frame, selected participants will then be sent a letter from their GP practice to ask them if they would like to attend an interview to discuss and participate in the project. The letter will include an information sheet detailing the purpose of the project and exactly what participation involves. They will be asked to return an expression of interest form in a stamped addressed envelope to the research team saying if they would like to attend or not participate. It will be emphasised that returning this form does not in any way represent a commitment to participating in the study. On the day of the interview, the project researcher would again go through the information sheet. Following this, if the participant is still happy to participate, written informed consent will be obtained prior to beginning the interview. We consider this process to be more accessible to people with SMI than being sent a long information sheet and being asked in writing if they want to participate. In case of any distress experienced by participants in the course of the interviews, they will be referred to their GP or care manager for further support should the need arise. The LAN will provide additional guidance on support mechanisms locally that need to be included in the study materials. All the interviews will take place at a GP surgery or other health facility and thus assistance would be accessible if required.

7.2 Confidentiality and data protection

All data held will be strictly confidential. Each participant will be given a unique identifying number. This will be the only identification on all data sources relating to participants e.g. transcripts and digital audio recordings, interview notes and survey. The lists matching participants to unique identifying numbers will be known only to the project team. These lists will be stored in a locked filing cabinet, apart from all other data on secure premises. Audio recordings will be kept on password protected central servers on the two research sites. Consent forms will also be stored apart from this data in a locked filing cabinet. These measures comply with the 1998 Data Protection Act.

7.3 Withdrawal from study

It will be made clear to participants that participation is voluntary and that they are free to withdraw from the discussion of particular issues or from the entire interview should they feel uncomfortable at any time. Also, participants are free to terminate their involvement with the project at any time, and will be given the option to have any previously recorded data excluded from the study and destroyed. Participants will be given the opportunity to raise questions with the researcher both before and after each interview, should any issues arise. Participants will also be provided with the project researcher's contact details in case of need for clarification of any issues following each interview.

7.4 Paying participants

We have decided that each participant (not professionals) will be paid the nominal sum of £20 to say 'thank you' for participating in the study after each interview. This figure has been set as it is judged to be small enough to not to coerce anyone into taking part, and large enough indicate the gratitude of the project team. Practitioners participating in the study will be offered a certificate of participation in research which they may use for CPD purposes.

8. Project management

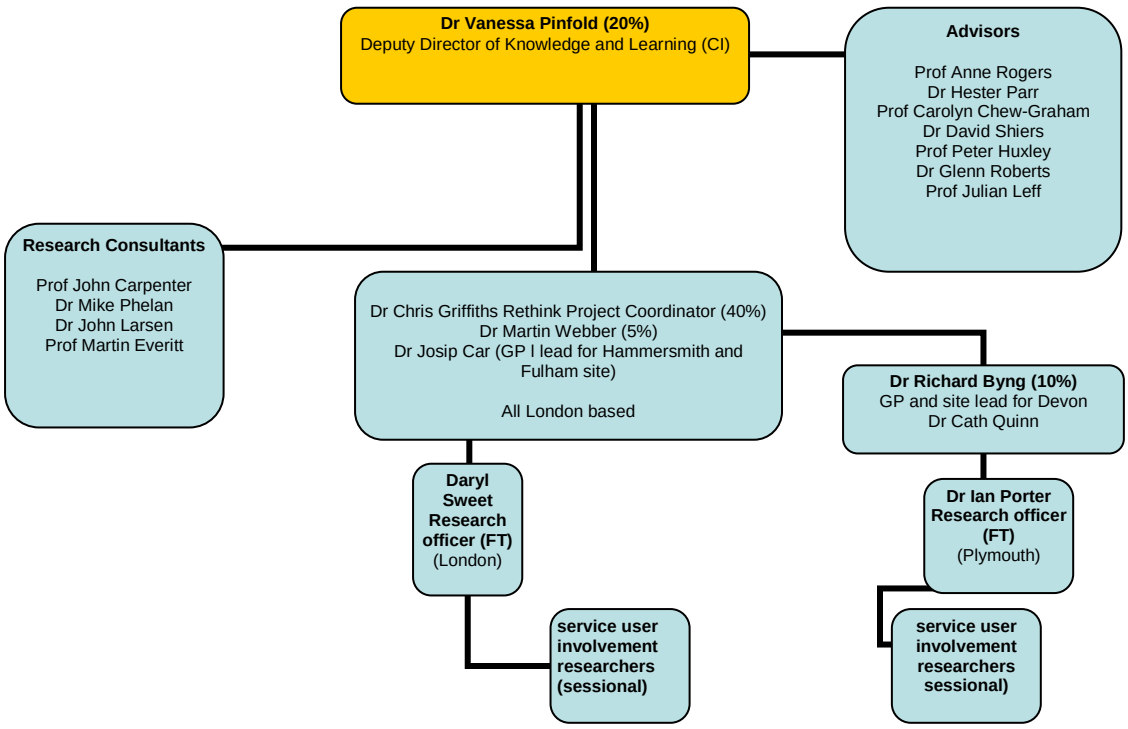
Rethink is the lead organisation for the project. It has a strong track record for delivering quality projects in partnership with other organisations. In this project, each academic consultancy will be managed using a partnership agreement including details of role and responsibilities alongside a payment schedule and a sub-contract will be put in place to cover the work undertaken in South Devon and Plymouth under the supervision of Dr Richard Byng from Peninsula Medical School. The project advisory group will serve an important management function – overseeing progress towards agreed milestones and outcomes, reviewing finances, and guiding the content of the research programme.

This actual programme of research work will sit in the Rethink Public Affairs Directorate within the research team, directed by Dr Vanessa Pinfold, the CI for the programme. Vanessa oversees all Rethink research programmes, will chair the project management group for the study. The day to day running of the project will be managed by the Rethink project coordinator working 2 days per week on this study. Rethink has a robust supervision structure with monthly meetings providing staff with support, guidance and opportunities to provide briefing updates. The main project team (Pinfold, Larsen, Byng, project coordinator and research officers) will also meet monthly by telephone conference calling, and face to face as required but as a minimum 4 times per year. The study will employ three research officers. All will need quantitative research experience. Qualitative expertise will be provided by Dr John Larsen.

- One researcher will be based in London, supervised by the project coordinator**,** and be responsible for data collection and study coordination in the London site
- The second researcher will be based at Peninsula Medical School in the Department of Primary Care. Dr Richard Byng will manage the South Devon and Plymouth sites and supervise researcher
- A third researcher on a short term contract beginning in year 2 will be employed to assist with module 3B and action workshops in Plymouth

In terms of communication within the team, several systems will apply. The project management group will meet via telephone conference monthly in addition to face to face meetings as required. The entire research team (Rethink, PMS, the London site, academic partners) will meet via telephone or face to face quarterly to keep track of progress. Line management supervision will take place monthly and the advisory network will meet twice yearly.. An analysis subgroup, involving Dr Webber, Dr Larsen, Dr Pinfold Dr Byng, the project coordinator and 2 research officers will work from the beginning to ensure optimal data collection and analysis.

Figure two: Community health networks: Project Staffing Structure September 2011



9. Service users

Service users with experience of SMI will be actively involved in the delivery of this project through membership of local delivery teams (two in each site). Rethink currently employs a consumer researcher within the team, who has commented upon the proposal. We have invited a GP (who is also a carer) to join our advisory group. The involvement of stakeholders is important to ground the study in issues that are of most relevance to those in receipt of health services. It also ensures that all the study materials – from study information sheets and letters of invitation, through to e-newsletters and knowledge outputs are written in a format that is most accessible to service users and carers, as well as NHS managers and practitioners.

10. Team expertise:

The team bring different skills to the project to complement each other. Dr Pinfold carried out her PhD in Nottingham in the 1990's addressing community connections of people with SMI, using a social network methodology. She has since set up the Rethink research department and is an experienced health service researcher. She is an advisor to FACTOR within the MHRN, and a member of INVOLVE reflecting her experience of PPI. Rethink have been working on a study addressing the physical health needs of service users (http://www.rethink.org/physicalhealthcheck) for the past 4 years with Dr. Phelan. He is a leading expert in the area of the physical health of people with SMI and has published extensively on the topic. Dr Phelan has a track record of carrying out research within health services particularly in the community. He will provide quantitative methodological expertise and ground the study in the practical issues facing practitioners on a daily basis to ensure our study adds value to NHS. Louise Howard is a Senior Mental Health Lecturer based at St. George's, University of London. In previous roles she has worked to improve primary and community care joined up working, with responsibilities for practice liaison. She has also been involved in the piloting of the Physical Health Check (PHC) tool with Rethink. Her expertise on the study is to ensure we use methods to explore health inequalities for people with SMI producing practical resources for service users and practitioners. Dr Josip Car is medical director for Hammersmith and Fulham PCT and Director of eHealth Unit, Department of Primary Care & Social Medicine, Imperial College London. He is experienced in managing organisational change having lead Hammersmith and Fulham PCT change management programme for blood pressure control in hypertension. He is also involved in the PCTs pilot site status for rapid implementation of polyclinics in London. The NIHR CLAHRC North West Network will also assist us with organisational research expertise. Dr Grant Blair is the mental health lead for Hammersmith and Fulham and a practising GP. Dr Richard Byng is an accredited GP with a special interest in mental health. As a practitioner he has developed a practice and locality based services for SMI, advised on national policy and set up the first health based Time Bank in the UK. Recently appointed as a Senior Lecturer at Peninsula Medical School, in the Primary Care Group and as a part of the PenCLAHRC initiative, he utilises a broad range of methodologies, has developed the use of Realistic Evaluation, managed a cluster RCT and carried out qualitative research. Dr Martin Webber is a social worker by profession and the Learning and Teaching coordinator at the Institute of Psychiatry for social care and social work. Dr Webber is well published using network analysis to explore social capital and mental illness. His PhD developed the resource generator and he will lead the analysis modules in this study with support from statisticians with the HSRPD at the Institute of Psychiatry. Professor John Carpenter is an experienced social scientist working across several health fields including mental health, learning disabilities and youth health. He brings to this study knowledge of social network analysis and extensive experience of complex studies to address organisational systems. Dr Larsen is Head of Research and Evaluation at Rethink. He has carried out ethnographic studies into the experiences of people with first episode psychosis and currently leads a Rethink programme managing 7 service user researchers on a project collecting recovery narratives. In this study he will support the involvement researchers, lead the qualitative data analysis including running our analysis workshops.

The project will also draw on the expertise of a number of collaborators and advisors. They will provide methodological and NHS service organisation expertise, ensuring that our study is carried out to a high standard, produces meaningful results for the NHS and is disseminated effectively to impact on current practice and thus outcomes for service users and carers. We have started to invite advisors to join us and everyone approached thus far has agreed:

- Qualitative expertise from Professor Chew-Graham and Dr Parr
- Sociological expertise and NHS policy related to primary care from Professor Rogers
- Link to Royal College of GPs Professor Chew-Graham (RCGP Clinical Champion, Mental Health)
- Carer and GP from Dr David Shiers
- Service user and consumer researcher Janey Antoniou, who has written our lay summary for the proposal
- Social care expertise including network studies from Professor Huxley

11. References

Addington J, el-Guebaly N, Campbell W, Hodgins DC, Addington D. (1998) Smoking cessation treatment for patients with schizophrenia. *American Journal of Psychiatry, 155*, 974-976

Appleby, L. (2007) Breaking down barriers. The clinical case for change. London, Department of Health.

Beaufait DW, Nelson EC, Landgraf JM, Hays RD, Kirk JW, Wasson JH, Keller A. COOP Measures of Functional Status. Tools for Primary Care Research: Research Methods for Primary Care, Sage Publications, Vol 2:151-157, 1992

Beresford, P. (2003), User Involvement In Research: Exploring the challenges, *Nursing Times Research*, 8(1), 36-46

Berkman, L.F. (1995) The role of social relations in health promotion. *Psychosom Med* 57:245–254

Bird, L. (2000) *Strategies for Living*. Mental health Foundation: London.

Borgatti, S. P., Everett, M. G. & Freeman, L. C. (1999) *UCINET 6.0 Version 1.00*. Natick: Analytic Technologies.

Borgatti, S. P., Mehra A, Brass D.J. & Labianca (2009) Network analysis in the social sciences. Science Vol. 323. no. 5916, pp. 892 - 895

Brown, S. (1997) Excess mortality of schizophrenia. A meta-analysis. *British Journal of Psychiatry*; 171: 502–508

Byng, R. (2007) Lets Get Physical' programme in Plymouth. Report on NIME funded pilot 2006-2007. Plymouth Teaching PCT.

Byng R, Norman I, Redfern S, Jones R. (2008) Exposing the key functions of a complex intervention for shared care in mental health: case study of a process evaluation. BMC Health Serv Res. Dec 23;8:274

Catty J**,** Goddard K, Burns T (2005) Social Services and Health Services Day Care in Mental Health: the social networks and care needs of their users. International Journal of Social Psychiatry: 51 (1) 23-34

Clifton, A., Pilkonis, P. A. & McCarty, C. (2007) Social networks in borderline personality disorder. *Journal of Personality Disorders*, 21, 434-441

Csordas, T.J. (1994) The Sacred Self: A Cultural Phenomenology of Charismatic Healing. Berkeley, CA: University of California Press.

Csordas, T.J. (2002) Body/Meaning/Healing. Basingstoke and New York: Palgrave Macmillan.

Daley, A.J., (2002) Exercise therapy and mental health in clinical populations: is exercise therapy a worthwhile intervention? *Advances in Psychiatric Treatment, 8, 262-270*

Department of Health (1995) Building bridges: a guide to the arrangements for inter-agency working for the care and protection of severely mentally ill people. HMSO: London.

Department of Health (1999) National Service Framework for mental health. HMSO: London.

Department of Health (2006a) Our health, Our care, Our Say. HMSO: London.

Department of Health (2006b) Choosing health; Supporting the physical health needs of people with SMI – commissioning framework. HMSO: London.

Department of Health (2006c) Best research for best health: a new national research strategy. HMSO: London

Department of Health (2008) Putting people first: a shared vision and commitment to the transformation of adult social care HMSO: London.

Department of Health (2009) New Horizons: Towards a shared vision for mental health. HMSO: London

De Silva M., McKenzie, K., Harpham, T., Huttly, S. (2006) Social Capital and mental illness: systematic review. *Journal of Epidemiology and Community Health* 2005;59:619–627

Derose, K. P., Duan, N., & Fox, S. A. (2002). Women's receptivity to church-based mobile mammography. *Journal of Health Care for the Poor and Underserved, 13*(2), 199-213

Derose, K.P. & Varda, D.M. (2009). Social capital and health care access: A systematic review. *Medical Care Research and Review* 66(3), 272-306

Disability Rights Commission (2006) Equal treatment: Closing the Gap. DRC's Health Formal Investigation Part 1. DRC: London.

Dutt, K. & Webber, M. (in press) Access to social capital and social support amongst South East Asian women with severe mental health problems: a cross-sectional survey. *International Journal of Social Psychiatry.*

Elsey, H., Lathlean, J. (2006) Using action research to stimulate organisational change within health services: experiences from two community based studies. Educational Action Research 14(2), 171-186.

Fattore, G., Frosini, F., Salvatore, D. & Tozzi, V. (2009) Social network analysis in primary care: The impact of interactions on prescribing behaviour. *Health Policy* 92, 2-3, 141-148

Flap, H. (1999) Creation and returns of social capital. A new research program. *La Revue Tocqueville* XX, 1, 5-26

Folsom, D.P., McKibbin, C., Jeste, D.V. & Patterson, T. (2007) Use of primary care with middle aged and older persons with schizophrenia. *Primary Care and Community Psychiatry, 11*, 101-106

Forrester-Jones, R., Carpenter, J., Coolen-Schrjiner P., Cambridge, P., Tate, A., Beecham, J., Hallam, A., Knapp, M., Wooff, D. (2006) The Social Networks of People with Intellectual Disability Living in the Community 12 Years after Resettlement from Long-Stay Hospitals. *Journal of Applied Research in Intellectual Disabilities*, 19, 285–295

Friedli, L (2009) *Mental health, resilience and inequalities*, Copenhagen: WHO.

Gerring, J. (2007) Case Study Research: Principles and Practices**.** Cambridge: Cambridge University Press.

Harris, E. C., & Barraclough, B. (1998). Excess mortality of mental disorder. *British Journal of Psychiatry, 173*, 11–53

IBSEN (Individual budgets evaluation network) Glendinning C., Challis D., Fernandez J.-L., *et al* . (2008) *Evaluation of the Individual Budgets Pilot Programme*. Social Policy Research Unit, Personal Social Services Research Unit, Social Care Workforce Research Unit, London.

Jackson, M. (1996) Things as They Are: New Directions in Phenomenological Anthropology. Bloomington: University of Indiana Press.

Lin, N. (2001) *Social capital. A theory of social structure and action*. Cambridge: Cambridge University Press.

Lin, N. & Peek, M. K. (1999) Social networks and mental health. In Horwitz, A.. & Scheid, T. (Eds) A Handbook for the Study of Mental Health. Social Contexts, Theories and Systems. Cambridge, Cambridge University Press, 241-258.

Marsden, P. V. (1990) Network data and measurement. *Annual Review of Sociology*, 16, 435-463

McCallister, L. & Fischer, C. (1978) A procedure for surveying personal networks. *Sociological Methods and Research*, 7, 131-148

McKenzie K, Whitley R, Weich S. Social capital and mental health. 2002; *British Journal of Psychiatry* 181:280–3.

Mitchell, J. C. (1969) The concept and use of social networks. In Mitchell, J. C. (ed.) *Social networks in urban situations*. Manchester: Manchester University Press, 1-50

Mitchell, J. C. (1974) Social Networks. *Annual Review of Anthropology* 3, 279-299

Moran-Ellis, J., Alexander, V. D., Cronin, A., Dickinson, M., Fielding, J., Sleney, J., et al. (2006). Triangulation and integration: Processes, claims and implications. Qualitative Research, 6, 45-59

Morgan C., Burns, T., Fitzpatrick, R., Pinfold, V., Priebe, S. (2007) Social exclusion and mental health Conceptual and methodological review. *British Journal of Psychiatry*, 191, 477-483

Murray, J., Easter, A. & Bellringer, S. (2007) Evaluation of Capital Volunteering. 3rd interim report: outcomes and experiences at six months. London, Health Service & Population Research Department, Institute of Psychiatry, King's College London.

Osborn, D.P.J. (2001). The poor physical health of people with mental illness. Western Journal of Medicine, 175, 329-332

Pawson, R., Tilley, N. (1997). Realistic evaluation. London: Sage

Pernice-Duca, F. M. (2008) The structure and quality of social network support among mental health consumers of clubhouse programs. *Journal of Community Psychology*, 36, 929-946

Pescosolido, B.A. and J.A. Levy. 2002. "The Role of Social Networks in Health, Illness, Disease and Healing: The Accepting Present, The Forgotten Past, and The Dangerous Potential for a Complacent Future." *Social Networks & Health* 8:3-25

Phelan, M., Stradins, L., & Morrison, S. (2001). Physical health of people with severe mental illness. *British Medical Journal, 322*, 443 – 444

Phelan, M., Stradins, L., Amin, D., Isadore, R., Hitrov, C., Doyle, A. & Inglis, R. (2004).The Physical Health Check: A tool for mental health workers. *Journal of Mental Health, 13*, 277-284

Pluye P, Grad R, Levine A, Nicolau B (2009) Understanding divergence of quantitative and qualitative data (or results) in mixed methods studies. *International Journal of Multiple Research Approaches, 3: 58-72*

Putnam, R. (1993) *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.

Rethink (2003) Just one percent. The experiences of people using mental health services. Rethink: London

Saha S Chant D & Mc Grath J (2007) A systemtic review of mortality in schizophrenia. *Archives of General Psychiatry*, 64 1123-31

Samele C (2004) Factors leading to poor physical health in people with psychosis, *Epidemiologia e Psichiatria Sociale*, 13, pp141–5

Sayce, L. (2001) Social inclusion and mental health. *Psychiatric Bulletin*, 25,121-123

Scott, J., Tallia, A., Crosson, J. C., Orzano, A. J., *et al.* (2005) Social network analysis as an analytic tool for interaction patterns in primary care practices. *Annals of Family Medicine* 3, 5, 443-448

Social Exclusion Unit (2004) *Mental Health and Social Exclusion*. Office of the Deputy Prime Minister.

Song, L. & Lin, N. (2009) Social capital and health inequality: evidence from Taiwan. *Journal of Health and Social Behavior* 50, 2, 149-163

Stewart-Brown S, Tennant A, Tennant R, Platt S, Parkinson J and Weich S (2009) 'Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a Rasch analysis using data from the Scottish Health Education Population Survey', Health and Quality of Life Outcomes, 7 15 - 22 (1477-7525)

Szreter, S. & Woolcock, M. (2004) Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology* 33, 4, 650-667

Thornicroft G, Brohan E, Rose D, Sartorius N, Leese M. (2009) Global pattern of experienced and anticipated discrimination against people with schizophrenia: a cross-sectional survey. Lancet; 373:408-415

Webber, M. & Huxley, P. (2004) Social exclusion and risk of emergency compulsory admission. Acase-control study. *Social Psychiatry and Psychiatric Epidemiology*, 39, 1000-1009.

Webber, M. (2008) Access to social capital and the course of depression: A prospective study. London, Institute of Psychiatry, King's College London.

Webber, M. & Huxley, P. (2007) Measuring access to social capital: The validity and reliability of the Resource Generator-UK and its association with common mental disorder. *Social Science and Medicine*, 65, 481-492

Weeks, M. R., Clair, S., Borgatti, S. P., Radda, K. & Schensul, J. J. (2002) Social networks of drug users in high-risk sites: Finding the connections. *AIDS and Behavior* 6, 2, 193-206

Yin, R.K (2002) Case Study Research: Design and Methods. 3rd ed. Newbury Park: Sage.