

An evaluation of stroke rehabilitation within Greater Manchester

Alison McGovern

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School of Nursing, Midwifery and Social Work

University of Salford

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Abstract

This study aimed to evaluate stroke rehabilitation services including the quality of services and the opinions of multiple stakeholders involved in stroke rehabilitation. Several methodologies were employed including a literature review, content analysis of national documents, case note audit and questionnaires of patients, staff and commissioners.

The content analysis identified 214 separate recommendations from 15 documents. Of these 21 were relevant to every patient receiving stroke rehabilitation; 13 related to the overall service provision and 8 related to specific aspects of patient care. These recommendations were converted to standards and used to audit the 10 stroke rehabilitation services in Greater Manchester using 100 individual patient records. 146 patients completed a satisfaction questionnaire, 46 staff and 6 commissioners completed questionnaires.

Results demonstrated variable compliance to national recommendations with primary stroke centres showing greater adherence than district stroke centres, indicating a two-tier service. All services offered a weekly multidisciplinary team meeting, 93% of patients spent most of their time in hospital on a specialist stroke ward and 96% commenced rehabilitation as soon as they were medically stable. However, only 22% of patients received 45 minutes of therapy per day and 4% received a discharge plan when leaving hospital. Staffing levels did not impact on adherence to national recommendations, however the most long-standing and prominent recommendations achieved greatest compliance.

Patients felt that they were treated with dignity, with older patients being more satisfied with stroke rehabilitation services than younger patients. However, patients did not feel that they received enough therapy or information relating to their goals within rehabilitation. Staff felt patients should receive more therapy than they currently do; patients should receive more than 3 hours a day despite currently receiving less than 60 minutes a day. The amount of therapy offered varied across disciplines with speech and language therapists providing less therapy than occupational therapists, physiotherapists and nursing staff. Staff felt the primary factor limiting the amount of therapy was staffing levels.

Commissioners' primary priority was to improve the outcomes for stroke patients, however different monitoring mechanisms between localities leads to the potential for different priorities and accountability.

This study is the first to systematically compile and evaluate national recommendations within stroke rehabilitation services and to include commissioners in the evaluation of stakeholders' opinions.

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1. Thesis Overview

1.1 Introduction

A stroke occurs when the blood supply to part of the brain is interrupted by either a blood clot or a haemorrhage, and surrounding brain tissue is damaged or dies. Stroke is the United Kingdom's (UK) leading cause of disability (Adamson, Beswick, and Ebrahim, 2004) with more than half of stroke survivors remaining dependent on others for everyday activities (Royal College of Physicians (RCP), 2011). Residual impairments can remain in mobility, cognition, swallowing, communication and use of upper limb. Stroke is one of the top three causes of death and the largest cause of adult disability in England (Department of Health (DH), 2005), with 110,000 strokes in England per year and 900,000 people living with the effects of stroke (NICE, 2013). Stroke rehabilitation aims to minimise residual impairments and disability thereby improving the patient's ability to function in daily tasks. In addition, rehabilitation supports the patient in adapting to their resulting disability, maximising their ability to participate in daily activities and social roles.

'Historically stroke has been seen as an inevitable risk of growing old, with little to be done for those who suffer a stroke other than trying to make them comfortable (DH, 2005).'

However, developments within imaging and the introduction of thrombolysis treatment within the past ten years, along with reorganisations of acute services, the release of central government funding, the introduction of national audits and the publication of national documentations have resulted in advancements in acute care. In 1998 the RCP introduced the first national audit of stroke care, carried out on a bi-annual basis, resulting in an increase in monitoring and accountability of acute stroke services. Subsequently the publication of the National Stroke Strategy (DH) in 2007 provided the markers of high quality

stroke care and detailed actions for improvement over the following ten years. To support the implementation of the strategy, £59 million was allocated to strategic health authorities. Additionally England was divided into 28 stroke networks intended to provide regional support to stroke services and improve co-ordination of care. However, in 2010 the National Audit Office concluded that improvements within acute services have not yet been matched by progress in delivering stroke rehabilitation care (DH, 2010). In response to the NAO report (2010) the National Stroke Improvement Programme launched the Accelerated Stroke Improvement Programme in April 2010 to support services in implementing the National Stroke Strategy during 2010/11 so that key 'milestones' covering prevention, acute and long-term care and working across the health and social care interface were met. It was recognised that 2010 / 2011 would be the final year with stroke as a national priority and dedicated DH funding being made available. The launch of this programme was designed to maximise the progress in stroke care whilst funds were available. Three of the milestones related to rehabilitation: access to early supported discharge; provision of a service to assess and support mood disorders; and provision of a review of needs six month after discharge.

The current research was carried out following the introduction of the Accelerated Stroke Improvement Programme (Stroke Improvement, 2010). Throughout the duration of this research the researcher was employed by the Greater Manchester and Cheshire Cardiac and Stroke Network (GMCCSN). Specifically during that time a priority of the GMCCSN and a primary role of the researcher was to co-ordinate and support improvements within stroke rehabilitation services within Greater Manchester.

This research, using an evaluation approach, aimed to explore the delivery of stroke rehabilitation services and implementation of national recommendations along with

gathering stakeholders' opinions. An evaluation seeks to assess the value of a service, involving the people which access the service (Robson, 2011). As such, a variety of methods have been employed, including:

- ✦ A detailed review of current national recommendations for stroke rehabilitation
- ✦ A detailed literature review of stakeholders' experience of stroke rehabilitation
- ✦ A detailed literature review of the elements and effectiveness of stroke rehabilitation
- ✦ An audit of current stroke rehabilitation services delivered
- ✦ A questionnaire survey of staff, commissioners and patients providing or receiving stroke rehabilitation services

1.2 Aims and Objectives of the research

Aim: To evaluate the quality of stroke rehabilitation services and the implementation of national guidelines within Greater Manchester.

Objectives:

- Identify national quality standards for stroke rehabilitation
- Develop framework for stroke rehabilitation from national quality standards
- Establish state of implementation of quality standards within Greater Manchester
- Identify barriers and facilitators to implementation of national quality standards
- Identify areas of inequity in service provision for stroke rehabilitation in Greater Manchester
- To explore staff perceptions of the amount of therapy stroke rehabilitation patients receive

- Identify patients' satisfaction with information provision
- Identify how often patients would like to receive therapy
- Identify limitations to the amount of therapy offered

1.3 Ethics

This study used data collected as part of a three year project within Greater Manchester and Cheshire Cardiac and Stroke Network (GMCCSN) to improve stroke rehabilitation services within Greater Manchester (GM). NHS ethical approval was sought in February 2010. Ethical approval was granted from the National Research Ethics Service (NRES), local Research and Development (R&D) departments and The University of Salford.

1.4 Contribution

During this work, the researcher was employed by GMCCSN as a Quality Improvement Manager. The researcher's roles included day to day running of the research, being the contact contact point for stakeholders involved in the research, securing ethical approval, preparation and development of study material, data collection and analysis of results. Additional support was provided by colleagues in the reviewing of recommendations compendium, piloting of questionnaires, distribution and return of patient questionnaires and collection of data via case note audit.

1.5 Structure of the thesis

This thesis is presented in nine sections. The following section (section two) presents the context in which the research is set. The third section explains the methodological approach

taken to the research, evaluation research. For reasons of clarity the main body of the thesis has been separated. Section four addresses adherence of stroke rehabilitation services to national recommendations whilst section five details stakeholders' opinions of stroke rehabilitation services. The final two sections, section six and seven discuss the impact that this research has had on practice and implications for further research.

2. Context

2.1 Introduction

The purpose of this section is to establish the context in which stroke rehabilitation is delivered within the UK and Greater Manchester, in particular, the content and benefits to patients of receiving rehabilitation following a stroke.

2.2 Rehabilitation

The Oxford Dictionary defines rehabilitation as to 'restore someone to health or normal life by training and therapy after imprisonment, addiction, or illness'

(<http://oxforddictionaries.com/definition/english/rehabilitate>). This definition emphasises how the word 'rehabilitation' is used in different contexts within society, each with a different semantic interpretations and concept attached to the word. Within healthcare, rehabilitation medicine is the medical speciality which has rehabilitation as its primary strategy.

Rehabilitation medicine in the UK provides services for people with complex disabilities with patients frequently presenting with a diverse mixture of medical, physical, social, sensory, cognitive, communication and environmental problems which require specialist input from a wide range of disciplines working together as a coordinated team (Stuki, Ewert and Cieza, 2002). Rehabilitation aims to 'facilitate the process of recovery from injury, illness, or disease to as normal a condition as possible' (<http://medical-dictionary.thefreedictionary.com/rehabilitation>). The field of rehabilitation within medicine was heavily influenced by the introduction of the World Health Organisations (WHO)

International Classification of Functioning, Disability and Health (ICF) in 2001. The ICF provides a framework for classifying health and disability at an individual and population level, which put the notions of 'health' and 'disability' in a new light (www.who.int/classifications/icf/en/index.html). It acknowledges that every human being can experience a decrement in health and thereby experience some degree of disability. Additionally the ICF takes into account the social aspects of disability and does not see disability only as a 'medical' or 'biological' dysfunction, thus synthesising both medical and social approaches to health. By including social factors, in which environmental factors are listed, ICF also acknowledges the impact of the environment on the persons functioning (WHO, 2002).

As a result of the ICF combining the medical and social models into one framework stroke rehabilitation services moved towards providing interventions aimed both at reducing impairment and increasing the participation of the patient. Stuki et al (2002) regard successful rehabilitation as understanding the relationship between problems caused by the impaired body functions and psychosocial and environmental factors which exacerbate or minimise them. Within health care, rehabilitation is an important element in the management of all conditions causing disability including cardiac, vocational, pulmonary, respiratory and stroke. Often rehabilitation refers to the multidisciplinary and interdisciplinary management of a person's functioning and health.

There are many definitions of rehabilitation but when applied to health care, the common elements focus on achieving set goals (NICE, 2008), a coordinated approach by both health and social professionals (Schwamm et al, 2005), beginning as soon as any initial impact is stabilised (Duncan et al, 2005). Specifically within stroke rehabilitation the objectives include optimising neurological recovery and teaching skills required for every day living (Schwann et

al, 2005) along with supporting psychological adjustment and minimising disability.

Ethically access to rehabilitation should be available and equitable to all those who require it (Caplan, Callahan and Haas, 1987). Statements from the United Nations Charter through its Standard (1993), The European Year of People with Disabilities (2003) and the 58th resolution of the World Health Assembly (2005) have all declared that access to rehabilitation is a basic human right.

2.3 Benefits of Stroke Rehabilitation

The benefits of rehabilitation post-stroke are well documented (Langhorne and Duncan, 2001) particularly if it is initiated early (Duncan et al, 2005; Cifu and Stewart, 1999; Paolucci et al, 2000; Monaghan et al, 2005; Ottenbacher and Jannell, 1993). Early implementation of rehabilitation is an important prognostic factor of functional outcome, with people who receive delayed onset rehabilitation showing poorer functional recovery (Paolucci, et al., 2000; Monaghan et al, 2005; Musicco et al., 2003). However the extent to which people with different severities of stroke benefit from rehabilitation is unclear. Animal studies combined with human neuroimaging demonstrate that recovery post-stroke is largely dependent on peri-lesional intact cortical areas taking over the lost function (Cramer et al., 2008). People with larger strokes have less potential for this to occur (Green, 2003), thus patients with severe stroke demonstrate poorer outcomes in a variety of areas relative to those with less severe stroke (Ween et al. 1996, 2000; Oczkowski & Barreca, 1993; Kammersgaard et al., 2004; Jeng et al., 2008) including longer length of stay, higher rates of mortality and institutionalization, greater dependence and lower functional ability.

However, there is a growing body of evidence suggesting that patients with severe stroke

benefit substantially from specialised rehabilitation and more so than patients with milder strokes. Such patients experience reduced mortality, increased likelihood of discharge home and a shorter length of stay in hospital when compared to those treated in a non-specialist setting (Stineman et al, 1998; Kalra et al, 1993; Jorgensen et al, 1995; Ronning and Guldvog, 1998; Teasell et al, 2005; Yagura et al, 2005; Kalra et al., 1993). The evidence is less clear with respect to functional independence; some researchers have found improvements in response to specialised interdisciplinary stroke rehabilitation care (Jorgensen et al. 1995, 2000; Ronning & Guldvog, 1998; Teasell et al, 2005) and others have not (Kalra & Eade, 1995; Kalra et al, 1993; Yagura et al, 2005). All in all, evidence from clinical trials suggests that patients with severe stroke benefit substantially from the provision of interdisciplinary specialised stroke rehabilitation and that these benefits may be greater than that seen for moderate strokes.

The personal benefits of rehabilitation to patient and family include reduced physical and psychological impact of the effects of stroke (Lofgren et al, 1999; Teng et al, 2003; Kalra et al, 2004). However, benefits of effective rehabilitation also relate to the wider economy and society. Effective rehabilitation can reduce length of stay and rates of institutionalisation (Jorgensen et al, 1999) and improve functional ability (Kalra, 1994), which reduce long term health and social care costs too (Teng et al, 2003; Krueger et al, 2012), thereby reducing the financial demands on a currently pressurised social care system. Increased functional ability also increases the opportunity for return to work, resulting in benefits to the government through taxation of earnings and reduced social support payments.

2.4 Main features of stroke rehabilitation in the UK

There is extensive literature detailing the effective features of stroke rehabilitation which

include multidisciplinary team management, early initiation of rehabilitation, mood assessment, intensive therapy and comprehensive information provision. One of the first national government documents to specifically address stroke care was *The National Service Framework for Older People* (2001) which stressed the importance of specialist multi-disciplinary teams, amongst other elements of care. This followed the National Health Service (NHS) Plan (2000) which highlighted the need for an integrated approach to health care and resulted in a significant growth in multidisciplinary team working (Ruhstaller et al, 2006) to the extent that multidisciplinary team working is now regarded a fundamental feature of the structure of any stroke rehabilitation service.

The 2007 National Stroke Strategy (Department of Health, 2007) aimed to secure improvements in local services by providing a robust quality framework based on a set of 20 Quality Markers covering the stroke pathway. Quality Marker 10 specifically addressed standards for stroke rehabilitation; highlighting the need for early rehabilitation in a specialised unit delivered by a multidisciplinary team of health care professionals. However, although nearly 75% of NHS Trusts in the United Kingdom now have a stroke unit, only a third of stroke patients actually receive the expected 90% of their inpatient care on such units (Rudd et al, 2005). Stroke rehabilitation should be available as soon as the patient is medically stable (Duncan et al, 2005) with an extra five patients returning home in an independent state for every 100 patients treated by a specialist inpatient stroke MDT (Langhorne and Duncan, 2005; The Stroke Unit Trialists Collaboration, 1997). Despite this clear evidence base, timely access to specialised rehabilitation is inequitable both nationally and locally with further improvements required (Public Accounts Committee, 2006; District Stroke Centre Event Output, 2009; National Stroke Strategy, 2007; National Audit Office, 2005). The most recent national documentations (Accelerated Stroke Metrics, Stroke

Improvement Programme, 2010; NICE, 2013) consistently highlight the need for psychological support for patients following stroke, adequate intensity of therapy and adequate information provision.

Currently psychological support for stroke patients is a national priority and can have a significant impact upon a patients' recovery following a stroke. Up to 79% of stroke patients experience a mood disorder during their rehabilitation (Kneebone and Dunmore, 2000) with at least one third suffering depression or an anxiety disorder within the first 12 months (Hackett et al, 2005). Depression is associated with longer hospitalisation, institutionalisation, poorer functional outcome, and greater mortality (Hermann et al., 1998; House et al., 2001; Morris et al., 1993; Pohjasvaara et al., 2001), lower survival rates (House et al, 2001; Morris et al, 1993) and less motivation to engage in rehabilitation (Reynolds, 1992). With such a high prevalence and significant impact upon recovery from stroke it is essential that all patients have the psychological impact of the stroke assessed during rehabilitation.

In addition to the importance of psychological support following a stroke at a national level, the following are also national priorities for stroke rehabilitation:

- ✦ The requirement for patients to receive adequate intensity of therapy (Accelerated Stroke Metrics v9, (Stroke Improvement) 2010; NICE, 2013; RCP, 2008).
- ✦ Several national documents specify that 45 minutes of each (required) therapy should be delivered daily during stroke rehabilitation (BASP, 2005; RCP, 2008; NICE, 2013).
- ✦ The Sentinel Audit (RCP) in 2008 highlighted the development of 7 day rehabilitation as a priority within its key recommendations. The evidence that intensity and

frequency of therapy impacts of functional outcomes (the more the better) continues to grow (Kwakkel et al, 2004; Sonoda et al, 2004). Despite this national recommendation and growing body of evidence, most rehabilitation units only offer therapy on week days; which is due to historical custom and practice rather than any robust evidence and is contrary to other health interventions which are offered seven days a week (Kalra, 2009), such as respiratory physiotherapy and radiotherapy (NHS Improvement, 2012).

Several current national documents highlight the importance of providing information to patients who have had a stroke as this reduces anxiety and facilitates patients to achieve their potential within rehabilitation (Rodgers et al, 1999; Morris, Payne and Lambert, 2007). However, there is limited evidence regarding the optimal method which should be used to deliver information to patients and families, along with a paucity of national standardisation regarding the content of information provided to patients and families after stroke.

Despite the benefits of stroke rehabilitation and the effective features that have been extensively documented, the recent improvements in acute stroke care in the UK have not yet been matched by rehabilitation services (National Audit Office, 2010). Evidence both nationally and locally indicates that implementation of effective stroke rehabilitation is inequitable and unstandardised.

2.5 Stroke Services within Greater Manchester

Within Greater Manchester, the hyper-acute stroke service is arranged in a hub and spoke model across the conurbation (Figure 1). Three primary stroke centres (PSC) offer

thrombolysis to patients presenting to hospital within four hours of the onset of symptoms. Patients presenting outside the first four hours are ineligible for thrombolysis and are taken to their nearest district stroke centre (DSC) for acute care. Once admitted to a PSC, those patients who have completed the acute stage of their care (typically 72 hours after their stroke) and are medically stable are transferred to their local DSC for sub-acute care and rehabilitation. Inpatient rehabilitation following a stroke is offered within eleven hospitals across the conurbation, with the patient accessing services within the hospital closest to their residence. If inpatient rehabilitation is not required, or following discharge from hospital, the patient may then access community based rehabilitation, the provision of which varies across the conurbation of Greater Manchester.

acute stage of stroke care rather than rehabilitation, perhaps due to the limited rehabilitation standards included in the audit. It is also clinician reported from within each organisation resulting in the possibility of reporting bias and only includes acute teams, with the exclusion of information from community stroke rehabilitation teams, who also deliver elements of rehabilitation. This does not reflect the long term nature of stroke rehabilitation.

The recent report from the Care Quality Commission (CQC) 'Supporting Life After Stroke' (2011), was the first report to explore post-acute stroke care in depth. It identified that only 37% of NHS trusts within England offered an Early Supported Discharge (ESD) service, a third of carers had no access to peer support and only 39% of patients were given a copy of care plans on transfer from hospital. Key areas for improvement included implementation of ESD services, ensuring all people who have had a stroke and their carers are provided with the information they needed in an accessible format when they leave hospital and a seamless transfer of care between acute and community services. Locally two PCTs scored least well performing (typically low marks in eight or nine of the 15 indicators and only high marks in one or two), five PCTs scored fair performing (more areas of weaknesses than strengths), one better performing PCT (more areas of strengths than weaknesses) and only one scored best performing (an average scored top two marks across eight or nine of 15 indicators and only one low mark in one or two areas).

Effective elements of stroke rehabilitation care are clear; early supported discharge (ESD) teams, goal setting, 45 minutes of each relevant therapy daily for a minimum of five days per week, and a review of the patient and carers health and social care needs six months after

the stroke (NICE, 2013). However, national monitoring remains inferior to the monitoring of acute stroke care, with developments in service delivery not achieving the same improvements as acute services (CQC, 2011). To address this, the national monitoring systems are currently further being developed to include more rehabilitation elements in order to encourage and monitor service delivery and improvements. The current acute data collection tool, SINAP (Stroke Improvement National Audit Programme, RCP) is being redeveloped to include areas of rehabilitation such as six month review, early supported discharge and mood assessment. This revised data collection tool, SSNAP (Sentinel Stroke National Audit Programme, RCP) will be launched in 2013.

3. Research Approach

3.1 Introduction

In recent years there has been increased interest in improving the quality of services within healthcare, with quality being high on the political agenda. In July 2010, the government White Paper 'Equity and excellence: Liberating the NHS' detailed the QIPP (Quality, Productivity and Prevention) agenda which aimed to improve the quality of care and, as a result, make efficiency savings within the NHS. Subsequent documents such as the NHS Operating Framework 2010 / 11 reiterated this aim. As a result of this political drive there has been a growing interest in research in to how to increase the quality of health services (Stevens, 2005), with a rapid development of approaches to evaluate the quality of services. However, no 'optimal methodology' has being identified (Grol et al, 2004). The research in this thesis ultimately aims to increase the quality of stroke rehabilitation services and lies within the field of service evaluation and, more specifically, within the theoretical perspective of realism and a methodology of evaluation, which are detailed further within this chapter. Central to the evaluation of stroke rehabilitation services is whether selected processes are implemented and the experiences of the stakeholders involved in delivery of processes and in receipt of the services.

3.2 Epistemology

Epistemology is the theory of knowledge (Bryman, 2012) which guides the research approach; in this research, the theory guiding the approach to the service evaluation. Such epistemological stances include positivism, constructivism, realism and pragmatism.

Positivism holds that there is a single reality which remains constant when being observed.

The goal of positivism is to use deductive reasoning to postulate a theory which can then be tested empirically. During the testing it is a requirement for the observer to be detached from the reality being studied (Robson, 2011).

In contrast, constructivism is a broad, multifaceted epistemological perspective which explores how reality and meaning is socially constructed (Bryman, 2012) and which recognises that the observer plays an active role in its creation of meaning and how reality is perceived (Crotty, 1998). As a result each individual views their social world differently, based on their interaction with their surroundings and their own personal experiences, giving rise to the possibility of multiple truths associated with different constructions of reality with different people constructing meaning in different ways (May, 2003; Crotty, 1998).

Realism shares features of both positivism and constructivism but also stands alone as a separate epistemological approach. In its simplest form, a realist perspective holds that real structures exist independent of human consciousness, but that knowledge is socially created (Saunders, Lewis and Thornhill, 2007). According to Blaikie (2007), whilst realism is concerned with what kinds of things there are, and how these things behave, it accepts that reality may exist in spite of science or observation, and so there is validity in recognising

realities that are simply claimed to exist, whether proven or not. While positivism concerns a single, concrete reality and interpretive multiple realities, realism concerns multiple perceptions about a single, mind-independent reality (Healy and Perry, 2000). The concept of reality embodied within realism is thus one extending beyond the self or consciousness, but which is not wholly discoverable or knowable. Rather than being supposedly value-free, as in positivist research, or value-laden as in interpretive research (Lincoln & Guba, 1985), realism is instead conscious of the values of human systems and of researchers. Within this framework, the discovery of observable and non-observable mechanisms, independent of the events they generate, is the goal of realism (Outhwaite, 1983; Tsoukas, 1989).

Realism differs significantly from experiential designs, which traditionally seek to find explanations for causation. Within successionist approaches, such as RCTs, A causes B. However, the realist approach has a different view of causation; generative causation, that A leads to B as a result of the mechanisms acting within the context (Robson, 2011). Realism differs from experimental designs in which the experimenter manipulates one variable and looks for a change in a second variable. In realist research the experimenter first 'triggers the mechanism under study to ensure its active' (Bhaskar, 1979) which is a more active task.

In the evaluation of stroke rehabilitation, realism recognises that each person involved in the service has constructed their own reality and that this is valid and exists as true to each individual, with or without scientific evaluation identifying 'proof' that their experience is valid. Realism recognises that social reality is pre-interpreted, however realists, in line with the positivist position, hold that science must be empirically-based, rational and objective and so it argues that social objects may be studied 'scientifically' as social objects, not simply through language and discourse. Realists would not conceive that stroke rehabilitation

services 'work' rather it is the action of stakeholders that makes them work and the potential of the service to provide reasons and resources to enable stakeholders such as clinicians and commissioners to create change. Therefore to fully explore the effectiveness of stroke rehabilitation and the reasons underlying variations in service delivery, all the relevant stakeholders must be engaged in the evaluation. Exploring the opinions of those who deliver and receive the service is essential in exploring what makes stroke rehabilitation successful and what factors are potentially hindering success.

Realism has recently had an influence on evaluation through the work of Robson (2011) and 'real world research'. Virtually all real world research takes place in the 'field' rather than laboratory situations, as the current research was, resulting in open systems (Robson, 2011) which cannot be sealed from external influences and can be entered and exited both literally and figuratively at any time. Within these open systems, such as stroke rehabilitation, people and aspects of the situation are likely to differ in ways that may or may not interplay with the investigation.

Pragmatism is particularly congenial to real world researchers (Robson, 2011). For pragmatists, only those things that are experienced or observed are real; truth lies in observable practical consequences rather than anything metaphysical. In this late 19th century American philosophy, the focus is on the reality of experience. Unlike Realists, Pragmatists believe that reality is constantly changing therefore whatever 'works' will also change, thus truth must also be changeable and no one can claim to possess any ultimate truth. There is no absolute and unchanging truth, but rather, truth is 'what works' (Robson, 2011). Pragmatism is therefore a philosophy that encourages us to seek out the processes and do things that work best to help achieve desirable outcomes (Ozman and Craver, 2008).

In relation to research, a pragmatist would advocate using whatever philosophical or methodological approach works best for the particular problem at issue (Robson, 2011).

Teddlie (2005) states that pragmatic researchers:

Decide what they want to research guided by their personal values system; that is, they study what they think is important. They then study the topic in a way that is congruent with their value system, including variables and units of analysis that they feel are the most appropriate for finding the answers to their research questions (p. 215).

Due to the real world nature of the current research, in an open system such as stroke rehabilitation, a pragmatic approach was taken. Within this approach practical theory that informs effective changes to practice is endorsed (Johnson and Onwuegbuzie, 2004) making it the most suitable approach for service evaluation, leading to service changes.

3.3 Service Evaluation

Service evaluation is the systematic collection and synthesis of data to assess the effectiveness of services in achieving predefined objectives (Shaw, 1980), which is traditionally based on the collection of data about the structure (organisational framework), processes (activities), outputs (productivity of the service) and outcomes of the service (impact of the service on the patient) (Donabedian, 1980). The knowledge and information gained through service evaluation can benefit the service, patients, staff and the NHS as a

whole. Evaluation helps those involved in a service identify what is working and gives information to help the service to achieve its aims or goals. There is considerable case study evidence that evaluations can influence policy, service planning and implementation (Rossi, Lipsey and Freeman, 2004), such as South Tees Hospital NHS Foundation Trust which amended their care pathway for patients with fractured neck of femur and reduced length of stay from 18 to 14 days and improved the information given to patients (DH, 2010 c). In the longer term, service evaluation has been purported to improve decision-making and resource allocation by adopting more effective project management arrangements and avoiding repeated costly mistakes, for example.

Evaluation within research is a field with a short history. The experimental research designs of the 1960s were largely superseded by attempts to develop evaluations which could be more useful in the process of decision-making (Robson, 2011). Weiss (1997) characterised this shift from a knowledge-driven to a use-led approach. An emerging evaluation approach is 'real world research' (Robson, 2011) in which small scale research with modest scope addresses change or policy, often seeking to evaluate a service. Often real world research is local, involving a small number of related sites, runs on limited resources, involve a single evaluator and occupies a short time scale (Robson, 2011).

Many of the service evaluation approaches used within the NHS originate from business and can be subdivided into overall approaches and specific tools. The most common approaches include 'Lean' and 'Six Sigma' (Boaden et al, 2006). The 'Lean' approach originates from Toyota, a motor manufacturer, and aims to optimise flow through the system therefore reducing waste. This whole system approach runs across all departments within an organisation and focuses on the analysis of processes. The role of leaders in guiding those less experienced in using the Lean methodology is fundamental to its philosophy and

success. A primary criticism of the Lean methodology is an over-reliance on tools which leads to a lack of understanding of the culture of the organisation being analysed. However, Hereford Hospitals NHS trust successfully utilised a Lean approach within the pathology and pharmacy departments to improve waiting times.

Six Sigma was initially developed by Motorola in the 1980s with an underlying aim to reduce delays thus eliminate outcomes that do not meet customer expectations (referred to as 'defects'), therefore the expectations of the customer are central to this approach. This continuous improvement approach uses many quality management tools which are also used outside of Six Sigma including scatter diagrams, Plan Do Study Act (PDSA) cycles and process mapping. In contrast to Lean, empirical data on the processes within the organisation is used throughout the process to inform areas for change and to monitor success. As with Lean, any change made through the Six Sigma approach is then sustained through 'champions', people focused on maintaining the Six Sigma approach, within the organisation. Similar to the Lean approach, criticism of Six Sigma includes the rigidity of the approach and over-reliance on tools (Jarrar and Neely, 2004), such as PDSA cycles and process mapping, and the lack of systematically reported evidence of success (Latzko, 1995). However, it has been successful within the NHS. For example, Sherwood Forest NHS Trust utilised Six Sigma to improve its performance so that it adhered to the national requirement to offer outpatient appointments within 18 weeks.

All evaluation approaches draw on a common body of tools for improvement. These include:

- ⤴ Process mapping (drawing the steps that the patient takes throughout their care),
- ⤴ Value streaming (use of a diagram to analyse the flow of services and the information required to deliver a service to a consumer)

- ✦ PDSA cycles (a four stage cycle to test an idea by temporarily trialling a change and assessing its impact)

Although presented by the original authors as different approaches, these tools or approaches are often used interchangeably in the literature and common principles are apparent. They all include:

- ✦ An evaluation of the processes involved to move patients through the service (so called patient flow)
- ✦ Variation in service delivery
- ✦ Whether customers' expectations are met

Differences between the evaluation approaches relate to their historical development and are actually a matter of emphasis on the core concepts of flow, variation and stakeholder focus rather than different theoretical perspectives or tools. Primary differences in the choice of approaches include whether the tools utilise data or processes to monitor improvements and whether the whole system or specific processes are included.

Realistic evaluation is based on the work of philosophers Bhasker (1979) and Harre (1984) which was developed into a paradigm by Pawson and Tilley (1997). One of the tasks of realistic evaluation is to make the theories within stroke rehabilitation services explicit by developing clear hypotheses about how and for whom rehabilitation might 'work' (Robson, 2011), aiming to subsequently improve the service based on the findings of the study. The implementation and evaluation of a service, using realist evaluation, then tests these hypotheses. This means collecting data, not just about the processes and impacts of implementing them, but also about aspects of the context in which stroke rehabilitation is implemented that might impact on outcomes and about the mechanisms that might create

change. Pawson and Tilley (1997) also argue that different stakeholders will have different information and understandings about whether, and how, services work. They stipulate that data collection processes should be constructed to collect information from all relevant stakeholder thereby enabling theories about how and for whom the program 'works' to be refuted or refined. Although a realistic evaluation approach was not adopted for the current study due to the absence of hypothesis generation and testing, the importance of stakeholder information informed the data collection used within the study.

In order to explore the regularities of stroke rehabilitation as a service, several steps must be taken. Firstly the desired features of the need to be ascertained and then the service(s)' adherence to the desired programme and the context in which it is delivered need to be evaluated. This process, along with the involvement of multiple stakeholders, the interdependent features of the delivery of the service and the changing nature of health services lend any evaluation of stroke rehabilitation to real world research and pragmatic approaches. Pragmatism is the most appropriate epistemological approach to evaluate stroke rehabilitation because of the multiple perceptions from different stakeholders about reality and the changing nature of stroke rehabilitation over time. This approach endorses fallibilism, that is, beliefs and research conclusions are rarely, if ever, viewed as absolute, allowing for the changing nature of health services. Evaluation is the most suitable methodological approach to evaluate stroke rehabilitation due to its emphasis on the collection of information from all relevant stakeholders, the goal of making theories of about stroke rehabilitation might 'work', for whom; followed by the evaluation of the mechanisms utilised.

3.4 Implementation

Numerous approaches exist for change implementation which health organisations may utilise when instigating changes in practice. While some strategies for getting research into practice, such as evidence-based clinical guidelines, assume a direct or instrumental process of research utilisation (Nutley, Walter and Davies, 2007), the reality in practice has been shown to be significantly more complex (Dopson et al, 2002; Kitson, Harvey and McCormack, 1998). One model of change implementation is Lewin's Force Field Analysis which encompasses three distinct phases known as unfreezing, moving and freezing or refreezing (Bozak, 2003). The intention of the model is to identify factors that can impede change from occurring; forces that oppose change often called restraining or 'static forces' and forces that promote or drive change, referred to as 'driving forces'. When health care organizations fully understand what behaviours drive or oppose change, then work to strengthen the positive driving forces, change can occur successfully (Bozak, 2003). Lewin also recognised the most effective way to manage behavioural change among individual members of a group is to work first on changing the group's norms, then focus on individual behaviours.

Langley et al (1996) developed the Model for Improvement which is based around the plan-do-study-act (PDSA) cycle. The use of this model over time to implement change is often referred to as rapid-cycle improvement; where a number of small PDSA cycles take place one after the other to generate continuous, incremental improvements in care. Harvey et al. (1996) detailed specific features for successful change implementation, which include reminders, audit and feedback, interactive educational meetings, the importance of forming networks and building good relationships and the identification of individuals to lead and facilitate the implementation process.

4. Review of current literature

4.1 Introduction

In line with realism , this study first identified the mechanism of stroke rehabilitation. This chapter will identify effective processes within stroke rehabilitation and stakeholder views of services, as supported in the literature.

4.2. Search Strategies

4.2.1 Search Strategy: Adherence to National Recommendations for Stroke Rehabilitation

An electronic literature search of stroke rehabilitation was undertaken. MEDLINE, EMBASE and CINAHL were searched using MESH terms 'stroke' and 'rehabilitation' combined with the individual terms 'standards', 'multi-disciplinary', 'assessment', 'treatment', 'therapy' and 'goal setting'. Three searches were repeated with additional boolean phrases to further narrow the results; 'assessment timing', 'early treatment' and 'therapy intensity' were included in the refined search combined with 'stroke AND rehabilitation'. Citation tracking was also carried out of reference lists within the papers identified electronically. Two hundred and sixteen articles were identified written in English; 84 to communications amongst team members, 21 related to timely access to stroke rehabilitation services, 13 to assessment, 36 relate to goal setting and 46 relating to intensity of therapy and 16 relate to standards.¹

¹ Complete reference list of identified studies not included in text due to length. A separate reference list can be found in appendix A



4.2.2 Search Strategy: Stakeholder satisfaction

An electronic literature search of stroke rehabilitation was undertaken to identify features contributing to satisfaction or dissatisfaction within healthcare settings and patient satisfaction with healthcare services. MEDLINE, EMBASE and CINAHL were searched using MESH terms 'NHS', 'stroke', 'health service', 'rehabilitation', 'staff', 'nurse', 'doctor', 'allied health professional', 'physiotherapist', 'occupational therapist', 'speech therapist', 'experience', 'satisfaction', 'opinion', 'patient', 'service user', 'survivor', 'commission*'. Four searches were repeated with additional boolean phrases to further narrow the results;

- ▲ 'patient', 'service user', 'survivor', 'commission*', 'speech therapist', 'physiotherapist', 'occupational therapist', 'staff', 'nurse', 'doctor', 'allied health professional' were all combined with 'OR'. This returned 559,662 articles.
- ▲ 'experience', 'satisfaction', 'opinion' were combined with 'OR', returning 146,822 articles.
- ▲ 'NHS', 'health service' were combined with 'OR', returning 23,604 articles.
- ▲ The above three combinations using the boolean phrase 'OR' were all combined using the boolean phrase 'AND' with two further searches of 'stroke' and 'rehabilitation'. This found 69 articles published in academic journals, written in English, between 1995 and 2013.
- ▲ Citation tracking was also carried out of reference lists within the papers identified

electronically.

Non-English papers and those relating to paediatrics were excluded. Sixty nine articles were identified written in English; 23 related to stroke care, 13 to general hospital care, two in mental health and one in palliative care. Thirty nine articles addressed patient satisfaction and six addressed staff satisfaction with services. Eleven articles were identified relating to health care commissioning; two relating to dentistry, one relating to palliative care and one relating to foster care. The remaining eight articles relating to commissioning explored the structure of commissioning of health and social services in general. Only one of these articles specifically explored priorities of commissioners within primary care palliative care services. Some of these articles included multiple areas. A complete reference list of identified studies is not included in the text due to length. A separate reference list can be found in appendix H.

Number records identified through database searching:
726,088



Number records after additional combined Boolean phrases:
69

Number records
excluded:
(Non-English,
paediatrics)
0



Number full text articles assessed for eligibility:

Number articles included in synthesis: 69

- ⤴ 23 stroke care
- ⤴ 13 general hospital care
- ⤴ 2 mental health
- ⤴ 1 palliative care
- ⤴ 39 patient satisfaction
- ⤴ 6 staff satisfaction
- ⤴ 11 commissioners

NB some articles related to more than one topic area

4.3 Adherence to National Recommendations for Stroke Rehabilitation

In line with the ICF biopsychosocial model, effective rehabilitation early after stroke enhances functional recovery and minimizes functional disability. Through the researcher's prior knowledge of the subject area it appeared that achieving an optimal outcome from rehabilitation is dependent upon specific processes being utilised such as having a process for the multidisciplinary team to discuss patient care (Fleissing, 2006), setting goals (Leach et al, 2010), assessing mood (Swindell and Hommons, 1991), adequate frequency of therapy (Swindell and Hommons, 1991), timely access to rehabilitation services (Monaghan et al, 2005) and effective assessment of impairments (Duff, 2009). However, specific details regarding the content and structure of rehabilitation has conflicting evidence within the literature. The processes involved in delivering stroke rehabilitation services lack definition for application and evaluation of effectiveness and therefore result in variations in structure.

4.3.1 Multidisciplinary Team Meetings (MDTMs)

In the United Kingdom, the NHS Plan (2000) emphasised the need for an integrated approach to health care resulting in a significant growth in multidisciplinary team working (Ruhstaller et al, 2006). 'Multi' refers to a team of more than two professional groups, focusing on complementary procedures and perspectives, providing opportunities to learn about each other and developing team members understanding of their separate but inter-related roles (Pirrie et al, 1998).

Multidisciplinary team management is evident in numerous health aetiologies, including chronic obstructive pulmonary disease (Alonso et al, 2007), coronary heart disease (Paul, 2009), motor neurone disease (MNDA, 2011), mental health (Carpenter et al, 2003) and

stroke (Langhorne et al, 1993). It is regarded as a fundamental feature within the structure of any stroke rehabilitation service.

Numerous studies have identified the potential therapeutic benefit of organized care in a stroke unit including increased survival and recovery of independence (Stroke Unit Trialists' Collaboration, 2001; Langhorne, et al, 1993; Kalra et al, 1993; Kalra, 1994; Drummond, Lincoln, Berman, 1996). However, stroke care is a complex intervention involving multiple processes and disciplines and an effective system for communication is required (Benson and Ducains, 1995; Birchall, 1997; Molyneux, 2001). The multidisciplinary team meeting (MDTM) has developed to fulfil this requirement, becoming central to delivering co-ordinated intra-organisational care (Ovretveit, 1995; Monaghan et al, 2005; Langhorne and Pollock, 2002). The benefits of MDTM workings have been theorised to include improved decision making, coordination of patient management, inter-professional communication, feedback and peer review, local policy development, data collection for audit and education, share information and goal setting (Fleissing, 2006). Other proposed benefits include consistency in the recommendation of patient management offered, a teaching element for junior doctors and improvement in communication between different specialists (Ruhstaller, 2006). However, these proposed benefits are primarily from studies of the MDT in oncology rather than stroke. Similarities exist between stroke and cancer care as numerous professionals are involved. However, in oncology, research into the MDT focuses on the role of radiologists within the MDTM. Radiologists are not part of stroke rehabilitation MDTMs therefore comparisons between the teams are limited. Furthermore, discussions at oncology team meetings tend to focus on the physical presentation of the patient (Ruhstaller et al, 2006) whereas discussions at stroke rehabilitation MDTMs are increasingly shifting towards the patients' functional abilities. Benefits found from effective oncology MDTMs may therefore

not be applicable to stroke and, consequently, may not be the most effective way for stroke MDTs to communicate. Until research is conducted comparing stroke rehabilitation teams utilising weekly MDTMs and those not, it is uncertain whether weekly MDTMs are the most effective practice and whether the proposed benefits of improved decision making, coordination of patient management, inter-professional communication, feedback and peer review, local policy development, data collection for audit and education, share information, goal setting and consistency of care offered occur as a result of utilising weekly MDTMs.

Studies suggest that such team meetings can have a positive impact (Bennett-Emslie and McIntosh, 1995), but require a consistent structure and process (Ruhstaller et al, 2006) and process compliance (Atwal & Caldwell, 2002). However, there is no consensus on effective structure, attendance or how decisions should be made and recorded. A recent survey found that one-third of MDTM participants felt that the discussion environment was suboptimal (Bydder et al, 2010), suggesting that improvements are required. This survey of 77 attendees of lung cancer MDTMs does not specify frequency or structure of the MDTM that participants are reporting, therefore limiting conclusions regarding the structure of meetings. Additionally the papers addressing MDTMs are all opinion pieces with evidence from empirical studies being sparse, also limiting conclusions on structure, frequency and content. There is considerable evidence within the literature to support the use of the ICF to structure stroke services and to aid communication amongst staff within the MDT (Tempest and McIntyre, 2006; Stuki et al, 2005). However, utilising the ICF has been acknowledged as a lengthy process as, to begin with, clinicians need to be made aware of and understand the ICF framework before considering its application (Tempest and McIntyre, 2006).

The effectiveness of communication in MDTMs may have a direct impact on the quality of

patient care provided (Ruhstaller et al, 2006). The development of a shared common language amongst team members within a meeting can facilitate communication (Tyson et al, 2010; Gibbin, 1999). Such a shared language is established through structured patient focused meeting agendas and measurement tools. Shared language increases cohesiveness of the group and reduces length of the meeting by focusing discussion on the patients' abilities rather than individual professionals' contributions (Tyson et al, 2010). These studies involved participants within acute stroke and neuro-rehabilitation MDTMs. Similarities exist between the structure of these teams and stroke rehabilitation but marked differences in length of stay and patients' impairments reduce the applicability of the results to stroke rehabilitation. These conclusions are, additionally, from small observational studies, using purposive sampling, limiting the external validity.

Disparities can exist between dominance and the contribution of team members in MDTMs (Vogwill and Reeves, 2008; Atwal and Caldwell, 2005; Gair and Hartery, 2001; Gibbon, 1999). Status could be one of the factors that affect levels of participation in MDTMs, with doctors tending to dominate communication within teams (Fewtrell and Toms, 1985). Gair and Hartery's (2001) observational study of five consecutive MDTMs within a geriatric unit found a similar contribution from nurses and doctors but a dominance of these professions over therapy staff. However, Gair and Hartery's (2001) study involved observing and interviewing colleagues who worked within the team the researcher worked with, giving rise to the potential for bias and the Hawthorne Effect. Although not carried out in a stroke rehabilitation team, the conclusions of Gair and Hartery have resonance with stroke teams. The unit observed within the study had similar objectives to stroke rehabilitation, to stabilise the medical condition and maximise functional ability. Therefore the discussions within the MDTMs are likely to have similarities. It is suggested that the size of the group could

influence interaction as therapists, social workers and nurses may have to compete against each other and the medical team in order to be able to express an opinion (Atwal and Caldwell, 2005). Within cancer care Ruhstaller et al (2006) suggests that those attending the MDT should be specialists within their field and capable of making independent decisions while recognising that MDTMs are effective learning opportunities for junior staff. Currently no evidence exists within stroke rehabilitation identifying the effect that dominance within teams has on decision-making. If doctors are dominant in order to sanction decisions, a MDTM is a beneficial process for numerous professionals to discuss and reach consensus for the doctor to sanction. Further research is required into whether the dominance of doctors within stroke MDTMs has a positive effect on decision making. Findings from such research could help to inform stroke rehabilitation teams on the structure of the MDTMs.

Amalgamating numerous disciplines into one MDT has the potential for effective decision-making (Opie, 1997). However, the integration of disciplines into a cohesive team potentially results in a lack of professional accountability or personal responsibility amongst team members (Brown, Crawford and Darongkamas, 2000). This could result in a diffused responsibility for taking and acting on decisions which have been evidenced within stroke MDTMs (Gibbon, 1999). Decisions made at the MDTM are not always implemented (NICE, 2003) and sometimes are not even documented (Macaskill et al 2006). It has been suggested that MDT clinical decision-making is underscored by effective communication (Tyson et al, 2010). More specifically, the structure of the meeting, focusing on the patient pathway rather than the contribution of individual disciplines resulted in progression of discussions. In addition focusing discussions around objective measurement tools was shown to increase communications (Tyson et al, 2010). Utilising the scores achieved from outcome measures has the potential to 'neutralise' differences of opinion between members of the group and

provides a 'shared language' amongst all MDT members which has the potential to reduce the duration of the MDTM (Gibbon, 1999). This suggestion is based on small observational studies therefore replication of these studies on a larger sample size, comparing a greater number of stroke MDTMs and using quantitative methods to triangulate findings would increase external validity. Further research utilising a larger sample size using quantitative methods in order to avoid the bias of the previous qualitative trials, would be beneficial to explore the use of a structured agenda focusing on outcome measures on clinical decision making in MDTMs. An extension of the non-participant observation of two units utilised by Tyson et al (2010) in a larger sample size including evaluating the impact of structured MDTMs on length of inpatient stay would have the potential to influence future national recommendations. These findings would also have utility in rehabilitation fields outside of stroke that utilise MDTMs such as neuro-rehabilitation, trauma and mental health services.

'Creeping genericism'; that is, people in cooperative work groups having a reduced sense of professional identity, may occur in MDTs (Brown et al, 2000). Within a stroke MDT members have dual identities as a profession and as part of the MDT, which may result in differing allegiances (Firth-Cozens, 2001). This can result in conflicting objectives between team members (Antai-Otong, 1997), which may impede the decision making process, prolonging length of stay in hospital for patients. Moreover, multidisciplinary team work could isolate members from the departments and professions from which they originated and thus deprive them of a sense of support and professional identity from others of a similar background (Berger, 1991). This is believed to be particularly acute for social workers who are often 'out-posted' from their own departments into an environment dominated by a medical model of health care which could conflict with the social model of care that is predominant in social work. Whereas some see this as an opportunity, many others see it as a

threat (Brown et al, 2000). To date research into this area has been outside of stroke services. Further qualitative research is required to explore whether the potential for a reduced sense of professional identify exists. If research suggests that it does exist within stroke rehabilitation teams further quantitative research would be required to identify the impact that this has on decision making and actioning decisions within the MDTM and the impact this has on length of hospital stay for the patients.

Studies exploring the effectiveness of MDTMs predominantly utilise qualitative observational methods (Tyson et al, 2010). To date, there is no quantitative evidence for the impact of varying structures and processes in MDTM on length of stay, reaching consensus in discussions or actioning of decisions. This limits the conclusions which can be drawn from these studies as these describe potential benefits rather than evaluating the impact of different structures and processes within the MDTM. Empirical studies are required specifically within the field of stroke rehabilitation to evaluate the effectiveness of different structures, frequency and processes on patient flow through the pathway.

Within national recommendations within the UK the frequency of MDTMs are stated as once a week as a minimum. However, in Australia The Garling Report (2008) proposed a policy that medical teams should meet daily. Different models have been put forward in the literature to host MDTMs more regularly than once a week, within both stroke rehabilitation, mental health (Flaherty et al, 2003), trauma (Dutton et al, 2003) and general medical management (Geary and Cale, 2009). An increased frequency of meetings has been suggested to be effective in reducing length of stay (Dutton et al, 2003), improving communications, improving co-ordination of care and increasing skills of staff within a general medical setting (Geary and Cale, 2009). Within mental health (Flaherty et al, 2003)

MDTMs occur five days a week, a similar frequency to that described by Geary and Cale (2009), however, Ellrodt et al (2007) used a frequency of three times per week. This lower frequency showed effective compliance to evidence based interventions within stroke care, which were sustained over a 12 month period. However, Ellrodt et al (2007) did not explore the impact on length of stay of the patient within the hospital. No quantitative research exists to compare the effectiveness of differing frequencies of team meetings within stroke rehabilitation, therefore further research is required in this area. Currently evidence exists within the literature to suggest that an increased frequency of meetings can negatively impact on staff learning opportunities due to a reduced length of meeting (Ellrodt et al, 2007; Montague, Lee and Hussain, 2004) but this has not been explored experimentally. However current research suggests that team meetings at a greater frequency than once a week have the potential to increase patient flow and reduce bottle necks in the patient pathway compared to the traditional MDTMs by re-visiting decisions and actions with a greater frequency.

4.3.2 Timely access to rehabilitation services

The brain appears to be 'primed' to 'recover' early in the post-stroke period (Schallert et al, 2003). In animal studies, if therapy is delayed for several weeks post-stroke, dendritic arborisation is markedly reduced (Schallert and Jones, 1993; Jones and Schallert 1992; Kolb 1995; Kozlowski et al, 1996; Schallert et al, 1997; Johansson, 2000). Stroke rehabilitation should be available as soon as the patient is medically stable (Duncan et al, 2005) with an extra five patients returning home in an independent state for every 100 patients treated by an inpatient stroke MDT (Langhorne and Duncan, 2005; The Stroke Unit Trialists Collaboration, 1997). Earliness of rehabilitation itself seems to be a relevant prognostic factor of functional outcome (Cifu and Stewart, 1999), and it is important to begin treatment as

soon as possible because any delay may greatly influence functional recovery (Paolucci et al, 2000; Monaghan et al, 2005; Musicco et al, 2003; Cifu and Stewart, 1999). Additionally, fewer days between onset of symptoms and admission to rehabilitation is associated with reduced length of stay, including patients with moderate severe onset symptoms (Maulden et al, 2005). More specifically, early mobilisation and resumption of self care activities as soon as medically feasible results in reduced mortality and long term disability (Musicco et al, 2003) and improved psychological well being (Cumming et al, 2008). Both of these studies included moderate and severe strokes, suggesting that these benefits of early commencement of rehabilitation are applicable to all patients. Early commencement of rehabilitation service is a potentially modifiable factor in stroke recovery and therefore an important feature in any stroke service.

Several studies provide evidence for the benefit of early rehabilitation compared with later intervention in patients with stroke (Ottenbacher and Jannell, 1993; Cifu, Stewart, 1999; Paolucci et al, 2000). Three systematic reviews (Cifu and Stewart, 1999; Langhorne, Wagenaar, Partridge, 1996; Kwakkel et al, 1997) concluded that early rehabilitation therapy “appears to have a strong relationship” with improved functional outcome. In these systematic reviews, however, methodological limitations of the primary studies, differences in organizational settings, and marked heterogeneity of patient characteristics proved to be major confounding factors (Kwakkel et al 2004). Significantly, the definition of 'early intervention' used in the primary studies varies from three to 30 days after stroke (Cifu and Stewart, 1999).

4.3.3 Effective Assessment of Impairment After Stroke

The first fundamental component of rehabilitation is comprehensive assessment; this is the

foundation upon which all future effort is based (Duff, 2009). Performing this initial task effectively is critical for subsequent processes in rehabilitation (Duff, 2009; Teasell et al, 2006; Wade, 1998), including goal setting, intervention and discharge planning. In rehabilitation as a whole, assessment is accepted as a common and universal approach (Duff, 2009). Limited evidence exists within the field of stroke rehabilitation specifically addressing the timeliness of assessment (Teasell et al, 2006). Suitable persons to carry it out and lack of effective structures may be the cause of variations in practice as noted by Duff (2009). However, evidence from general acute inpatient settings and geriatric services provide some insight into assessment within stroke rehabilitation.

The meaning of the term 'assessment' may vary and is rarely made explicit in the literature (Duff, 2009), limiting comparison of findings. Evidence for methods of assessment within stroke rehabilitation currently does not exist. Within geriatric services some teams carry out assessment in a uni-professional manner, others as a cohesive multi-disciplinary team and some utilise questionnaires with limited contact with the patient (Wade, 1998). Evidence exists suggesting that assessment for stroke patients in a uni-disciplinary manner is associated with a failure to identify problems which have been recognised by others (Cunningham et al, 1996). However, further research is required to define the most effective processes required for assessment in stroke rehabilitation, comparing uni-disciplinary and multidisciplinary approaches.

Randomised studies have investigated the benefits of assessments of disability within geriatric medicine, with conflicting results (Wagner et al, 1994; Pathy et al, 1992; Hart et al, 1990; Epstein et al, 1990). Two meta-analyses of these studies have both concluded that the current studies are of poor quality and therefore that no clear evidence exists for the

benefits of assessment (Conroy et al, 2011; Wade, 1998). Wade (1998) included 12 RCTs, all of which included general geriatric subjects. However, there was little consistency in the assessment process, outcome measures or stage of the patient in their rehabilitation, limiting comparison. More recently, Conroy et al (2011) included five RCTs conducted in an acute setting. Again, this meta-analysis concluded that no clear evidence exists for the benefit of assessment in general geriatric patients and that the quality of studies available was poor. Currently the evidence specifically relating to assessment does not allow absolute conclusions to be drawn about the benefits of assessment in isolation as the outcome measures used, such as institutionalisation, mortality and functional ability, are also dependent upon interventions following assessment. Further good quality RCT trials addressing stroke patients specifically, are required to evaluate the effectiveness of the content of the assessment, who within the MDT is the most effective person to carry out the assessment, the most appropriate time to carry out the assessment and the impact efficient assessment has on subsequent processes in the rehabilitation pathway.

Unfortunately, there is no consensus on which measurements should be used in stroke units (Kwakkel et al, 2011). The Barthel Index is the most commonly used disability scale for evaluating effectiveness of stroke units (Stroke Unit Trialists' Collaboration, 2007; Quinn et al, 2009), however some concerns have been raised regarding the lack of uniformity of the tests due to a separate 100 point and 20 point scale being utilised and the poor sensitivity across the range of possible outcomes, particularly in minor or more severe strokes (Quinn et al, 2009). Further research is required to explore the most effective version of the Barthel Index for the identification of long term disability as it is essential to minimise differential scoring as numerous clinicians are involved in the rehabilitation process therefore accurate interpretation of the scores is essential to plan and monitor intervention.

There is limited empirical evidence within stroke rehabilitation supporting assessment occur within a defined time frame, however, it is essential if early initiation of therapy is to occur. There is a growing need for early accurate prediction of outcome after stroke to set realistic and attainable treatment goals, inform clients and their relatives properly and facilitate discharge planning (Kwakkel et al, 2011). Unfortunately, there is no consensus about the most appropriate time after onset of stroke symptoms to perform these assessments (Duncan, Jorgensen, Wade, 2000; Sulter, Steen, de Keyser, 1999). The most effective timing for predicting functional recovery with one commonly used tool, The Barthel Index, was explored by Kwakkel et al (2011). They concluded that the assessment had good discriminative properties two, five and nine days after onset of stroke symptoms, with the most optimal post stroke assessment on day five.

4.3.4 Assessment of Mood Disorder in Post Stroke Patients

One particular area highlighting the relevance of the bio psychosocial model of the ICF is mood disorders after stroke as it demonstrates the impact a functional disability can have on the individual at a social level. At least one third of patients suffered from depression or an anxiety disorder within the first 12 months after stroke (Hackett et al, 2005). With such high prevalence it is essential that all patients' psychological needs are considered during rehabilitation as depression is associated with longer hospitalisation, institutionalisation, poorer functional outcome (Clark, 1998), mortality (Hermann et al., 1998; House et al, 2001; Morris et al, 1993 & Pohjasvaara et al, 2001) and reduced motivation to engage in rehabilitation (Reynolds, 1992). As most recovery occurs in the early stages after stroke onset and is hampered by depression, early diagnosis and treatment of mood disorders is essential (Swindell and Hommons, 1991). Utilising the ICF as a framework assists in the holistic

approach to stroke rehabilitation taking into account both the functional and social consequences of a stroke, ensuring areas such as mood disorder are not overlooked.

Numerous national clinical guidelines detail the importance of providing assessment of mood disorders after stroke, including *The National Stroke Strategy* (Department of Health, 2007), *The National Service Framework for Older People* (Department of Health, 2001), and the *National Clinical Guidelines for Stroke* (Intercollegiate Stroke Working Party, 2008). However, assessment can be complex due to concomitant neurological impairments, such as aphasia, memory problems, anosagnosia and visual neglect (Roger and Johnson-Greene, 2009; Salter, Bhogal, Foley, Jutai and Teasell, 2007; Spencer, Tompkins and Schulz, 1997). Therefore it is necessary that any assessment methods used are appropriate for stroke patients and assessments developed in other contexts need to be independently validated for use with stroke patients (Lincoln et al, 2011). Due to the complexity of stroke, a variety of measures may be needed according to the patient's abilities and the setting, which require further research in order to inform algorithms for assessment selection.

Despite the increased emphasis on clinicians assessing depression, the latest National Sentinel

Audit showed a decrease in the number of patients having their mood assessed by discharge (Royal College of Physicians, 2010). This may be due to a lack of reliable and valid screening tools for depression in stroke and there is no widely accepted tool in clinical practice (Watkins et al, 2007; Hackett et al, 2005).

A lack of evidence also exists regarding timing of assessment for mood disorders after stroke (Watkins et al, 2007). The results of Watkins et al (2007) suggest screening patients at two

weeks and three months after the onset of stroke symptoms as there are significant numbers of patients potentially depressed at both time points.

Studies of mood disorders after stroke often have methodological flaws limiting the validity of conclusions. Multiple tools to diagnose depression, with varying criteria for severity and differing eligibility criteria of participants of the studies limit comparisons between studies (Hackett et al, 2005). Greater uniformity or standardization of methodological issues within future studies would reduce measurement bias and facilitate external validity of findings.

4.3.5 Assessment of Mood Disorder in Carers of Stroke Patients

The importance of addressing the psychological well being of the carers of stroke patients is becoming increasingly highlighted within literature (Mant, 2001; Draper and Brocklehurst, 2007; Brereton, Carroll and Barnston, 2007) but continue to remain sparse in national recommendations for stroke care. The National Strategy for Carers (2008) identified that all stroke services should have a goal (and services in place) to support carers and help them to stay mentally well. Much evidence exists suggesting that caring affects the carer's physical, psychological and social well-being (Han and Haley, 1999). UK National Clinical Guidelines for Stroke recognize family members' need for information and long-term practical, emotional, social and financial support to cope with the residual problems associated with stroke (Intercollegiate Stroke Working Party, 2004). However, little evidence exists to assist in identifying the most useful interventions for carers. A variety of interventions have been used with carers such as caregiver training education and information (Rodgers, Bond, Curless, 2001; Smith et al, 2004) skills training (Patel et al, 2004) and social support (Printz-Feddersen, 1990). Although studies exist evaluating individual interventions, one systematic review by Brereton et al (2007) compared eight RCTs offering intervention providing more

than information provision. However, this robust review was not able to draw conclusions on the effectiveness of interventions due to the heterogeneity of interventions within the studies and the large range of outcome tools used to measure impact on carers. Further qualitative research is required to establish a consistent outcome measure followed by comparisons of the different approaches utilising RCT methods.

4.3.6 Goal setting

Goal setting is the process during which patient and clinical members of the multidisciplinary team make collective decisions, following an informed discussion, of how and when to carry out rehabilitation activities (Wade, 2009; McMillan and Sparkes, 1999). Setting and achieving goals is a fundamental component of any rehabilitation programme (Siegert and Taylor, 2004; McPherson, Siegert and Taylor, 2004; McAndrew et al, 1999; Peri et al 2004; Barnes and Ward, 2005; Wade, de Jong, 2000; Levack, et al 2006a; Levack, et al, 2006b). In addition, goal setting fulfils contractual, legislative or professional requirements for clinicians involved in stroke rehabilitation (Levack et al., 2006). Despite this, there is little consensus as to how goal-setting should take place (Leach et al, 2010).

Over the years, theoretical models of goal setting have been developed that provide a structured framework. Most existing theories have been developed within the fields of psychology and organisational behaviour, suggesting that explicit goal-setting is fundamental to goal achievement (Locke and Latham, 1990). Further, this body of research suggests that goal-setting is most effective when the goals are specific (Locke et al., 1988), attainable (Locke and Latham, 2002), appropriately challenging (Locke and Latham, 1990), and developed in a participative manner (Tjosvold, 1998). In contrast to the large body of research on goal setting in psychology and organizational behaviour, evidence concerning the

nature and influence of goal setting in clinical medicine is more limited. Current practice in stroke rehabilitation comprises various formal and informal approaches, with little evidence for the application of theoretical frameworks to rehabilitation (Siegert and Taylor, 2004; Cott, 2004; Playford et al, 2009).

Successful rehabilitation is seen as holistic, involving a team approach with an increasing focus on the patient and attainment of goals rather than resolution of problems (Gage, 1994). As a result of the introduction of the ICF framework in 2001 patient centred-ness is increasingly becoming an underlying principle in the delivery of stroke rehabilitation but more specifically, goal setting (Locke and Latham, 2002; Wressle, Henriksson and Oberg, 1999; Cott, 2004 ICF. The framework provides a sound theoretical basis for rehabilitation whereby goals developed can be centred around the individual and his/her lifestyle (Wade and de Jong, 2000). Effective involvement of patients in goal setting can improve patients sense of autonomy (Young, Manmathan and Ward, 2008), self-assurance (Lewinter and Mikkelsen, 1995), motivation (Leach et al, 2010; Wade and Dejong, 2000; Young, Manmathan and Ward, 2008; Tupper and Henley, 1987) reduce anxiety (McGrath and Adams, 1999), increase feelings of empowerment leading to greater participation in rehabilitation (Timmermans et al, 2009; Young, Manmathan and Ward, 2008) and increase patient satisfaction (McAndrew et al, 1999). However, patient involvement in goal setting is currently inconsistent (Rosewilliam, 2011; Wressle, Henriksson and Oberg, 1999; McAndrew et al, 1999).

Studies show that patients considered active participation in goal setting as important (Cott, 2004; Maitra and Erway, 2006) since patients expected that rehabilitation, customized to their personal goals, would change their life situation for the better (Bendz, 2003;

Andreassen and Wyller, 2005). Patients had also perceived that making progress towards personally meaningful goals had been good for their self-image and helped as a coping mechanism (McGrath and Adams, 1999). The literature suggests that professionals largely believed that they were patient-centred (Maitra and Erway, 2006; Holliday, Antoun and Playford, 2005). Despite this, patients have been reported as perceiving that they do not control the goals and their involvement with goal setting is passive (Young, Manmathan and Ward, 2008). Patients attribute this passivity to the physical impact of the stroke limiting their ability to participate in goal setting, being unprepared to participate due to limited information being provided by the rehabilitation team, and their inability to accept their condition especially in the early stages of the stroke (Cott, 2004). These patients had also criticized the professionals and healthcare system for being prescriptive and inflexible with respect to treatment goal setting (Young, Manmathan and Ward, 2008). Young, Manmathan and Ward (2008) is a study with a small sample size of 10 patients and, despite all patients having neurological conditions, they are not stroke specific. However, the qualitative interviews used facilitated in-depth exploration of patient's views on goal setting with efforts made by the researchers to reduce bias in the interviews. Further interviews with a larger sample size, specific to stroke patients, would be beneficial to add to this currently small evidence base.

Clinicians frequently experience difficulties in goal setting and find the process complex (Bloom, Lapiere, Wilson et al, 2006; Parry, 2004; Borrell, Daniels and Winding, 2002). Barriers include the nature of the presenting deficit, the mindset of patients concerning the most important goals, psychosocial demographics of the patient, differing expectations for rehabilitation and recovery (Daniels et al, 2002) and organisational pressures for a short length of stay (Cott et al, 2007). An additional barrier of the limitation of therapists time

(Parry, 2004) has been cited in the literature. Further to this Brown et al (1995) and Delbanco (1992) suggest it is not the goal setting process itself but the time taken to develop relationships with the patient required to facilitate the collaboration required for effective patient centred goal setting.

It is not possible to identify an explicit process for a patient-centred goal-setting process in existing stroke rehabilitation services. Goal planning is mostly done by the multidisciplinary team members based on their assessment of the patient problems and resource available to the team. These goals are then conveyed to the patient and the family in a formal meeting (Suddick and De Souza, 2006). At one end of the spectrum, goal-setting can occur independently of the patient based on assessment results with goals set by the rehabilitation team, through to the goal-setting based on the completion of life goals questionnaires in which the patient directs their own rehabilitation (Davis, Davis and Moss, 1992). Another more formal approach to goal-setting in stroke rehabilitation involves the use of activity level assessments, including the Barthel Index (Mahoney, 1965) and the Nottingham Extended Activities of Daily Living (EADL) (Nouri and Lincoln, 1987). Despite reports of these approaches to goal-setting, there has been little evaluation of the implementation or effectiveness of such methods. A criticism of current goal-setting practice is its subjectivity and need for a more robust theoretical basis (Siegert and Taylor 2004).

Goal Attainment Scaling and the Canadian Occupational Performance Measure are outcome measures frequently used in stroke rehabilitation which measure outcomes on the basis of goals set (Malec, 1999; Carswell et al, 2004). While goal setting is integral to the use of these measures, the focus of their development has been on their clinical value as an outcome measure rather than a practice framework to guide clinicians through the process. In

addition, the Canadian Occupational Performance measure has been designed for use for by occupational therapists rather than the whole multidisciplinary team.

Education for both patients and clinicians has been highlighted in the literature as an important feature of effective goal setting; clear provision of information about condition causing admission leads to improved goal setting (Sullivan and Yudelowitz, 1996). Professionals need to educate patients about the concept and the process of patient-centred goal setting, provide clear information regarding the condition, its prognosis and time course in order to inculcate realistic expectations (Cott, 2004; Sullivan and Yudelowitz, 1996; McAndrew et al, 1999; Hafsteinsdottir and Grypdonck, 1997). Skills such as listening, negotiation, ability to adequately guide patients, ability to think laterally and seeking alternate methods of communication for patients with speech problems are required by clinicians to effectively develop patient-centredness in goal setting (Leach et al, 2010; Hale and Piggot, 2005).

4.3.7 Frequency of Therapy

There is strong empirical evidence from meta-analysis of RCTs that greater intensities of therapies result in improved short-term, functional outcomes and reduce length of stay (Kwakkel et al, 2004). Despite research that demonstrates the value of rehabilitation therapies and stimulating environments, several studies have reported that the majority of a patient's time on a stroke rehabilitation unit is spent inactive and alone (Wade et al, 1984; Keith and Cowell, 1987; Lincoln et al, 1996; Bernhardt et al, 2004; Pound, Sabin and Ebrahim, 1999). Low levels of therapeutic contact time has been highlighted within smaller studies (Kalra et al, 1993; Tyson and Turner, 1999), however the lack of intensity of stroke rehabilitation within Britain has been quantified by the Collaborative Evaluation of

Rehabilitation in Stroke Across Europe (CERISE) (Putman and DeWit, 2009; DeWit et al, 2007; Putman et al, 2006; DeWit et al, 2006) study. This large (n=532) multi centre longitudinal study evaluated stroke rehabilitation practices and outcomes in four centres across Europe. Patients in Germany and Switzerland received on average 2 hours 30 minutes and 2 hours 45 minutes per day of therapy per day respectively (DeWit et al, 2005). In contrast patients in Britain received one hour of therapy per day. Despite no content differences (DeWit et al, 2005) in the therapy received in the different countries, the functional recovery in patients in Germany and Switzerland was higher than those in Britain (DeWit et al, 2007) indicating the relationship between the amount of treatment and functional recovery. Due to this relationship between intensity and functional recovery it is important that stroke patients within Britain receive adequate amounts of therapy whilst in rehabilitation.

Kwakkel et al (2004) conducted a comprehensive meta-analysis of 20 studies concluding that augmented therapy (an additional 16 hours of therapy within 6 months) is associated with improvements in activities of daily living (using the Barthel Index), functional outcome and recovery from hemiplegia. It was concluded from this meta-analysis that, on average, the studies included provided an additional 16-hour of therapy was needed during the first six months following stroke to have a favourable outcome. However, the improvements in activities of daily living as a result of the augmented therapy were not sustained at one year post stroke. A possible explanation is that the control groups continued to improve between 6-12 months post-stroke until their function matched that of the intervention groups (Langhorne, 2002) or that the intervention groups deteriorated once augmented levels of intervention were withdrawn. It must also be noted that considerable differences in the total amount of additional therapy time, as well as the timing and focus of intervention occurred within the studies included in this meta-analysis. The augmented therapy time ranged from a

minimum of 132 minutes (Green et al, 2002) to a maximum of 6816 minutes (Smith et al, 1981). These findings therefore prevent precise recommendations for optimal treatment times. Key limitations in this body of work are that none of the previous trials have sought to examine the shape of the dose–response curve and that therapy time provided by different professionals has frequently been combined without examination of the contribution of individual disciplines (Haines et al, 2009). Benefits associated with upper limb function and aphasia were not evident within this meta analysis. Further research is therefore required into the exact optimal dose of therapy in stroke rehabilitation.

Conflicting evidence exists for a dose response in upper limb therapy; some trials have concluded a positive benefit to enhanced therapy (Feys et al, 1998; Butefisch et al, 1995) whereas others have not (Lincoln, Parry and Vass, 1999). Lincoln et al (1999) did have wider inclusion criteria including older and more severely impaired patients than other studies, which may account for the lack of improvement during therapy. In contrast Feys et al (1998) carried out a large RCT, with power calculations to ensure sufficient statistical power. 100 consecutive stroke patients received an additional 30 minutes of treatment to improve upper limb function, five days a week for a six week period. Improvements were statistically significant and maintained at a 12 month follow period (Feys et al, 1998).

A meta-analysis of aphasia therapy between 1975 and 2002 (Bhogal, Teasell, & Speechley, 2003) selected eight studies which suggested that intensive therapy (defined as on average 8.8 hours per week for 11.2 weeks; average 98.4 hours total therapy) resulted in significant improvement in aphasia. Criticism levied at this analysis (Marshall, 2008) questioned the selectivity of studies included, noting in particular the lack of studies demonstrating positive effects from less intensive treatments. Some studies have suggested that intensive therapy

was more beneficial than non-intensive therapy immediately post-therapy and/or after a period of time without therapy (Szaflarski et al, 2008; Bhogal et al, 2003). However, most studies compared intensive therapy either to no therapy at all (Poeck et al, 1989) or to a different kind of therapy (Pulvermuller et al, 2001), therefore preventing them from concluding that intensity alone was the key element in their success.

4.4 Stakeholder satisfaction

4.4.1 Patient Satisfaction

The concept of patient involvement in the evaluation of care is not new. Early studies of patient satisfaction date back to the 1960s in the USA (Abdellah and Levine, 1965) and Britain (McGhee, 1961). Recently the involvement of patients in the evaluation of health care has been emphasised by health policy and legislation (Health and Social Care Act, 2001, DoH). The focus on the patient as evaluators of care has led to a growing number of studies investigating patients' satisfaction (Carr-Hill, 1992; Fitzpatrick, 1993; Williams, 1994; Edwards and Staniszewska, 2000; Aspinal et al 2003; Edwards et al, 2003). However, it is recognized that there is a lack of theoretical underpinning to satisfaction measurement in health care (Staniszewska and Henderson, 2005; La Monica et al. 1986; Staniszewska & Ahmed 1999, Rogers et al. 2000; Merkouris et al, 1999). While there have been some attempts to develop a theoretical understanding of what "satisfaction" measures (Linder-Pelz, 1982; Pascoe, 1983; Strasser et al, 1993) none have significantly enhanced the understanding of patient evaluation or provided a model to guide the development of methods (Staniszewska and Henderson, 2005). Concepts thought to have a key role in evaluation such as 'expectations', 'needs' and 'wants' have not been explored in depth and are generally poorly developed and understood (Staniszewska and Ahmed, 1999). This has hampered conceptual development because the basic building blocks of the evaluative process are not clear (Staniszewska and Henderson, 2005).

There is an increasing body of research on patients' experiences of stroke care (Pound, Gompertz, Ebrahim, 1994; Thomas and Parry, 1996; Kelson, Ford and Rigg, 1998; Macduff, 1998; Pound et al, 1999; Mckevitt and Wolfe, 2000). Generally stroke patients are satisfied

with their care (Thomas and Parry, 1996; Clark and Smith, 1998; Reker et al, 2002). However, a substantial proportion of patients are dissatisfied with at least one aspect of care (Morris, Payne and Lambert, 2007; Wellwood, Dennis and Warlow, 1995). Causes of dissatisfaction have been found to include poor functional recovery (Asplund et al, 2009), lack of need fulfilment (Dawson 1991, Wright 1998), amount of therapy (Tyson and Turner, 1999; Pound, Gompertz and Ebrahim, 1994; Lewinter and Mikkelsen, 1995), information provision (Tyson and Turner, 1999; Pound et al, 1995; Roding et al, 2003; Duncan et al, 2005; Morris et al, 2007; Gustafsson, 2008) and not being treated with dignity and respect (Tyson and Turner, 1999; Mangset et al, 2008). Poor functional recovery at three months post stroke is closely related to patient satisfaction (Asplund et al 2009). Although this was a large (n=104,074) study, therefore the conclusions have strong external validity, the study has methodological flaws. A proportion of the data presented by Asplund et al (2009) was collected via interview conducted by a member of the treating team, which may have influenced the responses patients gave to the interview questions. Patients can be concerned that a stigma can be associated with expressing dissatisfaction (Mulcahy and Tritter, 1994) that expressing dissatisfaction has the potential to be regarded negatively by clinicians. Patients feeling obliged to express gratitude for services received, (Sheppard, 1994; Dockrell, 1995) and fear of receiving poor treatment as a result of providing negative feedback (Mulcahy and Tritter, 1994) may have therefore influenced Asplund et al's (2009) responses. However, the conclusion that poor recovery is related to dissatisfaction was also found by Cleary and McNeil (1988). More specifically, Pound et al (1999) identified patients' with increased anxiety, depression, speech and swallowing deficits or motor deficit were less likely to be satisfied with services received by the health care team.

4.4.2. Fulfilment of Expectations

It has often been assumed that there is a relationship between satisfaction and the fulfilment of expectations (Fox & Storms 1981; Linder-Pelz, 1982; Williams et al, 1995; Hsieh and Donor Kayle, 1991) in that patients' whose expectations have been met report higher satisfaction than those with lower numbers of met expectations (Williams et al., 1995). More specifically, stroke patients' satisfaction is associated with feeling their care needs have been met (Scholtte, Op Reimer, De Haan et al 1996; Mangset et al, 2008). Lack of staff attention to patients' toileting needs contributed to carers' sense of burden and patients' experience of unmet need (Morris et al, 2007). All three of these studies have methodological flaws, depreciating the conclusions found. Small sample sizes with no power calculations limits their external validity. Additionally Mangset et al (2008) used a purposive sample to select those patients whom the researchers anticipated would be "able and willing to voice a critical approach to their rehabilitation process". This is highly likely to skew the feedback patients' provided towards a negative report. The link between expectations and satisfaction has not been unanimously supported in the literature and has been refuted (McKay et al. 1973; Medigovich et al. 1999; Sanchez-Menegay et al, 1992). Although few patient expectations were met, this appeared to have no impact on patients' satisfaction with their care (Sanchez-Menegay et al., 1992). Staniszewska and Ahmed (1999) suggest that the conflicting evidence regarding the link between expectations and satisfaction can be explained, at least in part, by the varied methodological approaches adopted. However, Staniszewska and Ahmed (1999) continue to cite different outcome measures rather than methodological approaches, as varying within the studies. Whilst the variation in specificity in outcome measures such as a 10cm analogue scale from 0 to 100 (Ruggeri and Dall'Agnola, 1993), 'yes' or 'no' choices (Like and Zyzanski, 1987) and 3 point (Williams et al, 1995) and 5 point (Linder-Pelz, 1982) likert scales the methodological approaches often include

qualitative semi-structured interviews (Scholte et al, 1996; Mangset et al, 2006) or focus groups (Morris et al, 2007). This variation in outcome measures may be because, like the concept of satisfaction, expectation is difficult to define (Like & Zyzanski 1987; Buetow 1995; Williams et al, 1995). Additionally, the different definitions of expectations that have been used within the studies may contribute to the varying conclusions between satisfaction and expectations. For example, Williams et al. (1995) define expectations in terms of needs, requests or desires the patient has in anticipation to an encounter whereas Like and Zyzanski (1987) refer to specific ideas about how the patient hopes they will be helped.

4.4.3 Patient Demographics

Several studies have attempted to identify the types of patients who are, or are not satisfied with stroke services, but the conclusions have been mixed. Some authors suggest that there is little or no correlation between demographic factors and satisfaction levels (Fox and Storms, 1981). Others, however, propose that demographic factors such as gender, socio-economic status and age impact on satisfaction levels (Malacrida et al. 1998; Welk and Smith 1999). Age has been suggested as the most influential socio-demographic factor in satisfaction, and that older patients' express higher levels of satisfaction than younger ones (Fakhoury et al, 1997; Lecouturier et al, 1999; Jenkinson et al, 2002). This may, at least in part, be due to older patients' low expectations and reluctance to express dissatisfaction (Mangset et al, 2008; Owens and Batchelor, 1996). However, in more recent reports of satisfaction of general health care (Care Quality Commission, 2011; The Patients Association, 2011), older patients' have expressed greater levels of satisfaction with care. The effects of gender are less consistent: while some studies showed that female patients' are more satisfied (Fox & Storms, 1981; Pascoe, 1983), other studies showed men to be more satisfied (Quintana et al., 2006; Sitzia, 1997; Richwhite, 1983; Lloyd-Bostock, 1992; Allsop, 1994), or

revealed no differences (Hall & Dornan, 1990; Sitzia, 1997). It has been suggested that women tend to express dissatisfaction more than men because women make greater use and have more experiences of health services and as a result have higher expectations (Allsop, 1994; Mulcahy and Lloyd-Bostock, 1994; Mulcahy et al, 1996).

4.4.4 Quantity of Therapy

Amount of therapy has been identified as the greatest cause of dissatisfaction amongst stroke patients' (Tyson and Turner, 1999; Pound et al, 1999; Morris et al, 2007). Pound et al (1999) quantified the amount of therapy patients received and their satisfaction levels. Those stroke patients receiving 20 minutes of therapy per day for two to four weeks were more satisfied with the amount of therapy than those receiving 20 minutes for less than two weeks and those receiving more than 20 minutes for more than eight weeks. This result indicates that patients are most satisfied with a particular amount of therapy and do not broadly want a prolonged amount of therapy. Some patients' consider that it was merely a question of financial resources in the public health system that limited the amount of training they received in hospital (Lewinter and Mikkelson, 1995). Although these studies included a small sample size, limiting external validity of conclusions, they were conducted with methodological rigour and statistical analysis strengthening the conclusions found.

More recently literature has supported the use of group therapy instead of individual therapy to increase the amount of therapy patient's receive. This has been demonstrated to have equal benefit as one to one therapy. Group therapy is used within several aetiologies to increase the amount of therapy whilst maintaining the same outcomes for the patients, such as Parkinson's Disease (Searl et al, 2011), obesity (Renjilian et al, 2001), obsessive compulsive disorder (Haland et al, 2010) and acquired brain injury (Lundquist et al, 2010). This is a

limited area of research within stroke rehabilitation, however it may become more prevalent following recent research indicating that an enhanced amount of therapy improves functional outcomes (Kwakkel et al, 2004) and national recommendations citing 45 minutes of each required therapy per day (BASP, 2005; RCP, 2008; Healthcare for London, 2009; NICE, 2000). Only one study has been conducted into the effectiveness of group treatment compared to individual therapy within stroke rehabilitation. A single blinded control trial by English et al (2007) comparing group circuit training with individual physiotherapy treatment sessions with stroke patients found that the circuit class resulted in higher functional recovery and higher patient satisfaction with the amount of therapy. This study is therefore support for the use of group treatment within therapy however, no research exists into the effectiveness of this method of delivery in speech and language therapy or occupational therapy interventions.

Utilising therapy assistants has also been suggested as a method to increase the amount of therapy a rehabilitation patient receives, however this area of research remains very limited. In 2000, the Audit Commission reported that the use of 'generic' assistants, who cover more than one discipline, helps by providing a much more flexible and efficient workforce that fits well with the multidisciplinary focus of rehabilitation and the complex needs of patients and users (Audit Commission 2000). Qualified allied health care and nursing professionals are increasingly allocating tasks to allied health assistants or support workers, freeing the highly qualified practitioners to manage clients with more complex issues (Robinson, DePalma and McCall, 1995; Cooper, 2001; Ford, 2004). The support worker role is therefore seen as enabling professionals to be freed up to carry out more complex tasks (Atkinson, 1993; Audit Commission, 2000; Kennerly, 1989; NHS Modernisation Agency; Stanmore et al., 2005) through support workers maintaining or even increasing the capacity of care previously

delivered by these professionals (Benson and Smith, 2006; Pullenayegum et al., 2005; Stanmore et al., 2005). Support workers tend to carry out more “hands on” care as opposed to the qualified practitioner role of assessment and care planning, develop more of a “friendship” with clients and may be responsible for delivering more repetitive rehabilitative therapy (Moran, 2009).

A greater proportion of care delivered by support workers and a greater proportion of support workers within a team are significantly associated with improved patient outcomes (Moran, 2009). One small study by Knight et al. (2004) evaluated the skills and activities of 13 rehabilitation assistants working in a rehabilitation unit in an NHS Health-care Trust in England. They found that the majority of the assistants time was spent undergoing mobility tasks, washing and activities of daily living, utilizing higher levels of reasoning than would be expected for support level staff. There is limited empirical research on the effectiveness of using therapy assistants (Stanmore et al, 2006), with the majority of studies that have been conducted utilising qualitative approaches to explore staff perceptions of the value of the assistant role, rather than quantitative analysis of the outcomes of assistant led therapy delivery. In a single case study Salisbury, Merriweather and Walsh (2010) identified treatment by an assistant provided increased amounts of rehabilitation in conjunction with ward based qualified staff who designed a programme for the assistant to deliver. Although functional improvements were made by the patient these can not be solely attributed to the intervention offered by the assistant as the patient continued to receive treatment from qualified allied health professional. A qualitative study by Nancarrow and Mackey (2005) identified that patients expressed satisfaction with the amount of time a staff member spent with them when their treatment was supported by an occupational therapy assistants. Additionally, Nancarrow and Mackey (2005) reported reduced burden on occupational

therapists because occupational therapy assistants could manage their own case load, which allowed them to undertake other tasks. Currently no research exists exploring the effectiveness on outcomes or goal achievement of patients using assistants to deliver speech and language therapy or physiotherapy interventions within stroke rehabilitation.

4.4.5 Information Provision

Patients' with stroke and their carers feel inadequately informed about stroke, support, and services (Pound et al, 1995; Tyson and Turner, 1999; Rodgers et al, 2001; O'Mahoney et al., 1997) with 42.5% of patients dissatisfied with the information received whilst in hospital (Wellwood, 1995). A lack of knowledge about stroke, the longer term consequences and the support available are associated with increased anxiety and worry and may contribute to patients' failure to realise their maximal potential after discharge (Rodgers et al, 1999; Morris et al, 2007). Lack of information is also related to satisfaction with services (Lecouturier et al, 1999; Carr-Hill, 1992; Smith, Forster and Young, 2009). Studies of patient satisfaction with information provision predominantly utilise questionnaires, either postal or within structured interviews, with quantitative analysis of results (O'Mahoney et al, 1997; Pound et al, 1995; Wellwood, 1995; Tyson and Turner, 1999). This is the most suitable method to answer the specific question 'are patient's satisfied with information provision?' However, within this area studies are limited by small sample sizes. A group of studies have explored how the information is presented to the patient's and carer's. Only one RCT has been conducted (Mant et al, 1998) which also had a sample size too small for external validity. It is the only study to explore the effectiveness of information packs in increasing patient knowledge, rather than individual pieces of information. However, information packs were provided at one month post stroke, with outcome measures not conducted until 6 months post stroke. The research question stated by Mant et al (1998) does not specify whether the authors are

evaluating the impact information provision has in the short or long term. By evaluating the impact at 6 months this study only evaluates the long term. This method evaluates the long term quality of life but does not address immediate changes following information. In addition the RCT conducted by Mant et al (1998) was not blinded, resulting in participants being aware of which arm of the study they were in. This may have influenced responses to satisfaction questions depending upon whether participants considered that they had received all of the information available to them by being in the intervention arm, or were missing out on information by being in the control arm of the study. Additionally, the participants in the two groups were not balanced in age which has been identified in other studies (Jenkinson et al, 2002) as a demographic factor impacting upon patient satisfaction.

Conflicting evidence exists regarding optimal delivery methods for information, between written and oral methods. Written information assists the patient to follow recommendations and advice, and improves their knowledge and recall of health information (Griffin et al, 2003) and are valued by patients (Wellwood et al, 1994; Lomer and McLellan, 1987). However, much of the written information provided to patients and their families is unsuitable in terms of the high complexity of syntactic and semantic content (Glanz and Rudd, 1990; Albert and Chadwick, 1992; Estrada et al, 2000, Sullivan and O'Connor, 2001). Additionally written information can become outdated requiring potentially costly updating. One comprehensive meta-analysis of 11 RCTs (Smith, Forster and Young, 2009), concluded that methods that actively include patients, had a greater effect on anxiety and depression than passive interventions including information packs and computer programmes at one to twelve months after stroke. This meta-analysis concluded that 'cases' of depression reported were reduced, along with improved scores using a standardised assessment for anxiety, the Hospital Anxiety and Depression Scale (HADS)

(Zigmond and Snaith,1983).

To be most effective, the information given should be personalised to the individual patient (Pain and McCellan, 1990; Wiles et al, 1998). Research from other chronic conditions suggests that personalised information can lead to better quality of life (Montgomery et al, 1994). In a RCT of 138 stroke patients, with a power calculation for external validity, Hoffmann et al (2007) found that providing stroke patients with computer-generated tailored written information improved satisfaction with the information that was received than non-tailored information, but had no effect on knowledge about stroke, self-efficacy, depression, or perceived health status.

A possible cause of the dissatisfaction with the information given, may be that patients feel the information provided does not address all the issues of concern to them (Tooth and Hoffmann, 2004; Tyson and Turner, 1994). Topics of particular importance to the patient include cause of illness, individual progress, evaluation of treatment plan, decisions about discharge and follow-up (Maclean, 2000). Risk factors, emotional and cognitive problems, secondary prevention and support groups (Tooth and Hoffmann, 2004) and medications, goals and diagnosis (Jones et al, 2008) have also been identified by patients as areas in which they would like information. Topics of importance to patients' after stroke vary with the time (Hanger et al, 1998); questions about the psychological and cognitive effects of stroke increase between six months and two years, while questions related to causes of stroke decrease (Hanger et al, 1998), suggesting that the content of information may need to vary at different time points after stroke. All of these studies employ a qualitative methodology using questionnaires or focus groups to gather patient evaluations. Whilst qualitative methods are suitable for exploring the information needs of stroke patients', this method

does not account for differences in information provided through standard services.

Therefore, although the studies highlight a deficit, content of the information is not clear.

Setting goals with the patient is one method for providing information and is a primary way of enhancing patient centeredness and involvement in the rehabilitation process (Levack et al, 2011). Goal setting is the process of providing information and engaging patients and carers in the rehabilitation process (Davis et al, 1992; Partridge and Edwards, 1996). Most human behaviour is goal-directed therefore people act for a reason (Wade, 2009).

Rehabilitation aims to change these behaviours and goal setting is a formal process to explicitly identify these reasons to change behaviour (Wade, 2009). The benefits of goal setting include increasing a patient's behaviour change by increasing their motivation, ensuring that all team members are working towards a unified goal, allowing the effectiveness of the rehabilitation process to be monitored (Wade, 2009), reducing patient anxiety (McGrath and Adams, 1999) and to increase patient's insight and acceptance of their limited recovery (Playford et al, 2009). During a consensus event Playford et al (2009) identified that professionals regard goal setting as a core component of the rehabilitation process, however the evidence underpinning the practice is patchy (Wade, 2009). There is limited evidence as to the most effective method of goal setting, with a variety of approaches being utilised within clinical practice (Playford et al 2009; Wade, 1999; Schut and Stam, 1994). However, despite the variety of methods available there is agreement regarding the purpose and mechanisms within the process (Levack et al, 2006). A systematic review by Levack et al (2006) identified four purposes and four mechanisms to achieve the purpose. To improve rehabilitation outcomes, evaluate the outcomes of rehabilitation, enhance the autonomy of the patient and to meet the funder and professional requirements were common purposes identified. In order to meet the purpose of improving the outcomes

of rehabilitation, there is strong evidence that from RCTs (Levack et al, 2006) and from consensus pieces (Playford et al, 2009) that specific difficult goals can improve the performance of patients on simple tasks. The evaluation of rehabilitation outcomes can be achieved by measuring observed against predicted outcomes. However, patients, clinicians and commissioners are likely to evaluate quantitative and subjective measures differently (Playford et al, 2009) therefore a broad variety of measures are needed to capture meaningful changes to the patient's quality of life (Kagan et al, 2008). The autonomy of the patient can be improved through the involvement of patients in the process of goal setting by increasing ownership and satisfaction with the goals set (Holliday et al, 2007).

Levack et al (2006) suggested the documentation of evidence that goal setting had occurred can help to meet funder and professional requirements. This can be challenging as the priority of commissioners as funders and those of a professional may not complement each other or that of the patient (Barnard et al, 2010; Levack et al, 2006; McPherson et al, 2009; Ylvisaker et al, 2008), resulting in goals set not fully reflecting the priorities of the patient. Through using a conversational analysis of six family meetings Barnard et al (2010) concluded that there 'was rarely a straightforward translation of patient wishes into agreed-upon written goals'. It was identified that therapists would use convoluted strategies to implicate patients in therapist-led decisions, which would be achievable within the scope of the service. This finding was supported by Levack et al (2011) using multiple qualitative sources including interviews and observations.

The evidence of the benefits of involving patients in the goal setting process is limited. Studies within an Occupational Therapy setting suggest that involving patients in goal setting improves outcomes (Latham, 1978) and increases knowledge (Locke, 2002). A study by

Holliday et al (2007) within a rehabilitation setting demonstrated that patients prefer increased participation in the goal setting process. Patients reported that their goals were more relevant and more autonomy was achieved through greater participation. More specifically, a written work book was utilised to facilitate patient priorities and goals. However, this study was conducted in a physical rehabilitation facility, rather than neurological, and relied upon patients completing a written work book prior to admission. As stroke patients are admitted as emergencies completion of a book pre-admission would not be possible. In addition stroke can impact upon reading comprehension, vision and concentration, limiting access of stroke patient's to a written format. Therefore the approach detailed by Holliday et al (2007) is not applicable to stroke rehabilitation settings.

4.4.6 Dignity in Care

A relationship between interpersonal skills of healthcare staff when interacting with patients and satisfactions reported by patients' has been documented (Shou-Hsia, Yang and Chiang, 2003; Hall and Dornan, 1990; Cleary et al, 1991). Studies of general hospital care show that people who are dissatisfied with care felt they had been treated as "non-persons" and that they had been treated as "objects" rather than individual human beings (Oakley, 1980; Bowler, 1993). Patients receiving care in multiple settings have reported at least some or occasional dignity concerns (Chochinov et al, 2002). Specifically within stroke rehabilitation patients are on the whole satisfied that they have been treated with dignity and respect (Pound, Gompertz and Ebrahim, 1994; Tyson and Turner, 1999), however the percentage dissatisfied is 10% (Pound, Gompertz and Ebrahim, 1994) therefore satisfaction with being treated with dignity is not consistent. Despite the small sample size of 12 patients', purposive sampling and a limited setting of one stroke rehabilitation unit, Mangset et al (2008) supported previous findings that to be treated with dignity was a core factor

contributing to patients' satisfaction with rehabilitation services. Patients whose dignity was compromised reported a higher desire for death or loss of will to live than patients whose dignity was intact (Chochinov et al, 2002; Ganzini et al, 2000; Meier et al, 1998; Van der Mass et al, 1991), along with a decrease in physical and mental health (Walsh and Kowonko, 2002; Lamm, 2007) and emotional reactions such as anxiety, anger, humiliation and embarrassment (Griffin-Heslin, 2005; Clark, 2010).

Dignity is a key concept in clinical ethics (Chochinov, 2002; Lothian and Philp, 2001) and professional practice (Jacobs 2001; Shotton and Seedhouse, 1998) as well as international bioethics (Andorno, 2003; Gurnham, 2005). Dignity is a basic human right (Amnesty International, 1948) and is endorsed by the Amsterdam declaration on the promotion of human rights (WHO, 1994). The topic of dignity has not been extensively researched within stroke rehabilitation, with most studies exploring dignity in health care addressing palliative and end of life care (Chochinov et al, 2002; Johnson, 1998; Pannuti, Pannuti and Tanneberger, 1992). There have been many attempts to define dignity but the meaning remains complex and unclear (Jacobson, 2007; Gallagher, 2011). Perhaps one of the challenges is due to the concept of dignity being a complex, 'ambiguous and multivalent' (Moody, 1998) and multidimensional (Calnen et al, 2003; Enes, 2003) thus difficult to define (Pinker, 2008). Many authors have noted the vagueness of the term within the literature (Becker, 2001; Feldman, 2000; Harris, 1997; Jacobs, 2000; Pullman, 2000). This has resulted in divergent descriptions for the concept including objective and subjective (Feldman, 1999; Jacelon et al, 2004; Nordenfelt, 2004), as public and private (Arnason, 1998; Meyer, 1989), individual and collective (Andorno, 2003; Dillon, 1995), as internal and external (Jacelon, 2003; Jacelon, 2004, Mann, 1998, Miller and Keys, 2001) and as hierarchical and democratic (Dillon, 1995; Havry, 2004). As a result attempts to define and explore dignity and its

characteristic raise several issues; the meaning of dignity remains unclear (Jacobson, 2007), essentially it is a subjective concept (Becker, 2001; Moody, 1998, Pullman, 1996) and the concept itself is contradictory (Pullman, 2001).

Despite the challenge of exploring a subjective concept, several researchers have attempted to define what constitutes as dignity and features promoting its maintenance, resulting in a range of perspectives. Jacobson (2007) concluded two subgroups of dignity; human dignity owned by all humans being 'simply by virtue of being human' and 'social dignity' which is earned. Within a health care setting it is the human dignity that is considered most important to the patient experience. Nordenfelt (2004) identified four varieties of dignity; dignity in merit, dignity in moral stature, dignity in identity and human dignity. Similarly Cochrane (2010) outlined four concepts of dignity; dignity as virtuous behaviour, dignity as inherent moral worth, inherent human worth dignity and dignity in species integrity.

The concept of dignity has been suggested to consist of many features: being treated with humanity, being acknowledged as individuals (Mangset et al, 2008; Bagheri et al, 2012), having autonomy respected, having confidence and trust in professionals, dialogue and exchange of information (Mangset et al, 2008; Bagheri et al, 2012), privacy (Bagheri et al, 2012; Walsh and Kowanko, 2002; Matiti and Trorey, 2008; Dawood and Gallini, 2010, Mann, 1998), pain (Chochinov et al, 2002), deterioration in appearance (Chochinov et al, 2002), a sense of being a burden to others (Chochinov et al, 2002) and a persons ability to exercise competence or to have the help to do so (Shotton and Seedhouse, 1998). Mann (1998) went on to suggest four threats to dignity including when a person is not seen as having value, is seen as only a member of a group, when privacy is threatened and when a person is humiliated. Chochinov (2002) also identified alternative threats to dignity including a

deterioration in appearance, sense of being a burden to others, needing assistance bathing, requiring inpatient hospital care and having pain were the most significant issues related to a fractured sense of dignity. Chochinov (2004) developed an empirically based model of dignity in the terminally ill, consisting of three categories; illness related issues and concerns which includes level of cognitive and functional independence and physical and psychological distress caused by the symptoms of the illness; dignity conserving repertoire consisting of the patients world view and techniques to maintain a sense of dignity; social dignity inventory which is constructed by the quality of interactions a patient has with others that enhance or detract from their sense of dignity.

The interpretation of dignity is related to culture, social values and the context in which it is experienced (Lawless, 2010) so different groups might experience dignity in different ways (Clark, 2010; Bolton, 2007; Fenton and Mitchel, 2002). Indeed, younger patients have been identified as more likely to have a fractured sense of dignity than older patients (Chochinov et al, 2002; Kathol et al, 1990; Noyes et al, 1990). Thus violation of dignity is an individual experience. The perception of dignity also appears to depend on the situation in which the individual is placed. Patients continually adjust their perceptions of the level of their dignity that needs to be maintained, depending upon their circumstances. This has been termed the patients 'perceptual adjustment level', within which there is an expectation relating to the degree of exposure of their body or public discussion of their condition that he or she is prepared to tolerate (Matiti and Trorey, 2008).

Patient dignity is considered essential for professional nursing practice and features in numerous international documents, with explicit references to dignity featuring in The International Council for Nurses (2006), the Nursing and Midwifery Council Code of Conduct

and the Royal College of Nursing (2003). A statement report from the UK Health Commission (2006) highlights the ethical importance of dignity in the care of patients, particularly older people and failing to treat patients with dignity 'at all times, in all situations...is an infringement on their human rights' (p. 9). Nursing staff report an awareness of dignity, along with potential barriers to prevent a patient receiving dignified care. In 2008 the Royal College of Nursing conducted a large survey exploring nurses' perceptions of dignity within health care, identifying a high level of awareness of dignity amongst nursing staff and a strong commitment to deliver dignified care. Many respondents reported overcrowding of the environment, unsuitable bathroom and toilet facilities, lack of confidential treatment rooms, insufficient material resources and staff time were inhibitors to delivering dignified care. A lack of staff time has been cited in several other studies exploring barriers to delivering dignified care (Bagheri et al, 2012), impacting on staff ability to communicate effectively, which has been unidentified as a feature of dignified care. One of the interactions that makes patients feel valued and in control, therefore resulting in a sense of dignity, is explaining and giving disease- related information to patients (Baille, 2009; Matiti and Trorey, 2008; Dawood and Gallini, 2010).

Nursing staff identified national policies as a threat to delivering dignified care (RCN, 2008). Governmental policies were described as both supporting and undermining dignity in care. On the one hand policies promoted dignified care practices such as Fundamentals of Care (Welsh Assembly Government, 2003) and Essence of Care (Department of Health, 2010). On the other hand NHS targets leading to the creation of a performance-driven culture was identified as having the potential to undermine dignity.

Research into dignity in health care predominantly focuses on the dignity of the patient, but

very few studies have been carried out on the importance of dignity in nursing staff. One study by Lawless (2010) highlights the importance of the dignity of the nurse and the impact this can have on the care of the patient. According to Lawless, when nurses' dignity is not maintained they may not respect themselves and in turn their ability to respect others will decrease. Threats to nurse's dignity have been identified recently by Khademi, Mohammadi and Vanki (2012) in a small study of purposeful sampling nurses as irreverence, coercion and violation of autonomy, ignoring professional capabilities and the denial of the value of nursing care. These threats to dignity can result from numerous sources including patients, managers, relatives and physicians and occurred when these factors were not in line with the expectations of the individual nurse.

4.4.7 Staff

Studies of staff and patients have demonstrated that staff morale (Fosbinder, 1994; Tzeng, Ketefian and Redman, 2002), and doctor-nurse collaboration (Larrabee et al, 2004) are associated with patient satisfaction. In addition, physical and professional divisions between parts of the service were considered to reduce cohesive working and to hamper the effectiveness and consistency of care. Where staff had a chance to work flexibly across roles, it was felt to be beneficial in increasing the consistency of care delivered (Morris et al, 2007). However, the staff's experience of providing stroke care is a neglected area of research (Morris et al, 2007).

Previous studies have identified that time pressure is prevalent in nursing practice (Manderino et al, 1994) and increases when patient to staff ratio increases. Time pressure is a psychological urgency attributed to insufficient time for completion of required tasks (Keinan et al, 1987). According to studies involving multiple disciplines, time pressure

adversely impacts decision making quality (Hahn et al, 2006) and judgement accuracy (Edland and Svenson, 1993). Time pressure exacerbates negative emotions (Ben-Zur and Brenznitz, 1981) and emotional exhaustion (Demerouti et al, 2000; Gelsema et al, 2006). Time pressure urges individuals to accelerate their cognitive processes and decision making to a faster rate than normal (Payne et al, 1993) requiring individuals to expend all of their energies to achieve tasks. A significant amount of large sample studies (Shindul-Rothschild, Berry and Ong-Middleton, 1996; Aiken et al, 2002; Needleman et al, 2002; Dang et al, 2002; Provovost et al, 2001) exist supporting the association between nurse staffing levels and patient outcomes, including mortality and patient satisfaction, with most studies supporting the relationship between positive staffing ratios and patient outcomes. However, these studies have been conducted in acute medical settings rather than rehabilitation settings, therefore limiting their validity to a rehabilitation context. In contrast a smaller number of studies demonstrated mixed results with staffing levels not associated with 30 day mortality (Tourangeau et al, 2007; Whitman et al, 2002).

In a qualitative study of 33 therapy and nursing staff, Morris et al (2007) explored the opinions of nursing and therapy staff specifically working in stroke care. As with other studies (Tovey and Adams, 1999; Tyson and Turner, 1999) staff shortages were felt by nursing staff to hinder care. Staff nurse perception of short staffing were the most consistent predictor of both job and career satisfaction (Shaver and Lacey, 2003), with job satisfaction, psychological and physical health declining as nurse to patient ratio increases (Burke, 2003), along with emotional exhaustion (Dimick et al, 2001). Staff shortages put nurses under pressure to limit the range of care-giving roles performed and made them unable to contribute to broader personalized recovery plans and their own skills development (Morris et al, 2007). Nurses also felt that the staff shortages limited the time they had to develop personal relationships

with the patients, which impacted on patients' satisfaction (Jones et al, 1997; Teng et al, 2010).

In addition to better patient outcomes, hospitals with higher nurse staffing levels had significantly lower rates of nurse burnout (Rafferty et al, 2007), which is characterised by depersonalisation, reduced achievement and may reduce concentration of staff during care related tasks (Spence Laschinger and Leiter, 2006). When experiencing burnout, health care staff have minimal resources for delivering their work place tasks, creating a gap between required and actual performance, potentially impacting upon patient care (Teng et al, 2010).

Nurses in hospitals with higher staff to patient ratios were 71% more likely to experience burnout and job dissatisfaction than hospitals with favourable staffing levels. Nurse burnout and dissatisfaction are pre-cursors for resignation of staff (Sheward et al, 2005; Lake, 1998) and patient dissatisfaction (Vahey et al, 2004). In previous studies more than one third of nurses reported experiencing burnout and were dissatisfied with their jobs (Rafferty et al, 2007). Nurse burnout is highly related to patient safety (Spence Laschinger and Leiter, 2006; Teng et al, 2010).

The Processing Efficiency Theory (Eysenck and Calvo, 1992) has been suggested to explain the combined impact of time pressure and burnout on patient safety. According to this theory, which has considerable empirical support (Kellogg et al, 1999), negative emotions such as anxiety and worry utilise a person's working memory. This reduces capacity for optimal decision making. As health care requires direct actions and decisions impacting upon patients, burnout and time pressure may increase the risk of nurses making suboptimal decisions, possibly threatening patient safety (Teng et al, 2010).

Several means for reducing burnout have been suggested, including facilitating team work (Rafferty et al, 2001), creating an effective nurse-physician relationship (Rostenstein and O'Daniel, 2005) and providing nurses with the power to control their scheduling (Sagie and Krausz, 2003). However, little evidence exists supporting the implementation of these research findings into practice (Aiken et al, 2012). Within a large multi centred study Aiken (2012) identified that the UK has the median amount of patients to professional registered nurses (8.6 range 5.3 – 13) yet was the second highest of 13 countries for nurses regarding themselves as 'burnt-out' (42% range 10 -78%) and intended to leave their job within the next year (44% range 14 – 49%). This study by Aiken et al (2012) is the only one to quantify staffing levels in relation to patient outcomes. Previous studies did not address whether staff-perceived time pressure, a subjective interpretation, relate to an actual limit in staffing to patient ratios. However, Aiken et al (2012) only compared actual staffing levels with one measure of patient outcome, patient satisfaction. Therefore the impact of staffing levels on functional outcomes cannot be concluded.

4.4.8 Commissioners

Commissioning is the term used in the NHS to describe the planning and funding of services. It is concerned with the decision making about the health needs of a population, the services which would be required, allocation of resources to deliver the services and the monitoring of services to ensure they meet the standards set out in contracts. As such commissioning has a strategic and proactive element, aiming to influence services offered by health providers. Several reviews of the performance of commissioners reported that, despite an increase in overall life expectancy, health inequalities between different groups had widened (Department of Health 2009; Thorlby and Maybin 2010). There are significant differences across England in terms of treatments, expenditure and outcomes, suggesting that

unwarranted variation exists with resulting implications for equity (Atlas of Variation in Healthcare, Right Care 2010). The atlas concludes that those who 'commission healthcare have a responsibility to mitigate the effects of factors that influence poor access to, and provision of, healthcare' (Right Care 2010, p 13).

Health inequality has not always been high on the political agenda in the UK. The Black Report first highlighted health inequality related to social class in 1982. Subsequently the Independent Inquiry into Inequalities in Health report (Acheson, 1998) identified an overall downward trend in mortality between 1970 and 1990 but that improvements in mortality were not even across social class. Since that time numerous international, national and local documents have specifically addressed inequities in health care. At an international level the World Health Organisation published a report 'Closing the gap in a generation: Health equity through action on the social determinants of health' (2008). Nationally 'spearhead PCT' were selected in 2004 to pilot new initiatives to reduce health inequities in the most deprived areas in England and locally several reports at local levels highlight commitments to reducing inequity (Health Inequalities Action Plan 2010 – 2013, NHS Sheffield, 2010; Reducing health inequalities in Doncaster: achieving sustained change, Doncaster PCT, 2009).

Studies of inequities in health have looked at different demographic factors such as ethnicity, geography, gender, age, socio-economic status, and educational level. However, the results of these studies have been mixed and any conclusions drawn could not be applied to the broader rehabilitation patient population. In a study of racial disparities among stroke patients in rehabilitation Putman et al (2010) showed no disparity in functional recovery among white and African Americans during inpatient rehabilitation. Chan et al (2009) found

some evidence of racial disparities in access to care, with Asians and African Americans accessing more outpatient rehabilitation visits than Hispanics, who had more than Caucasian patients. This study, however, was conducted in Northern California which has unique demographics potentially impacting upon the conclusions. Similarly, Ngo et al (2009) found that Hispanic patients received more physiotherapy per month than black and white patients, but they also received less monthly Occupational Therapy than both groups. Additionally, Caucasian patients received more Occupational Therapy than black patients. However, none of these findings were statistically significant. In addition to the racial disparities Chan et al (2009) found that a higher age at discharge from hospital, being white, female, living in a rural area and having a shorter acute length of stay were all associated with receiving less outpatient stroke rehabilitation. Lee and colleagues (1997) also identified significant differences in utilisation based on geographic location.

Although the effects of socio-economic status and educational level have not been studied as thoroughly as race some research does exist that suggests trends in inequity in access to rehabilitation services. Older patients receive more physiotherapy per month compared to younger patients, but they receive less Occupational Therapy (Ngo et al, 2009). Earning less than \$25,000 per year also makes a patient more likely to receive therapy than those earning over \$25,000 (Ngo et al, 2009). However, these conclusions have been drawn from America which delivers a different health structure than in the UK, therefore these conclusions may not relate to the NHS.

Despite national documents detailing the role of commissioners, currently no evidence exists regarding commissioner's priorities specifically in stroke care, with very limited evidence in

the wider health arena. The current study located one previous piece of research exploring General Practitioner and District Nurses commissioning priorities for palliative care (Barclay et al, 1999). Despite being limited to one geographical region, thus limiting external validity of the results, this postal questionnaire received a good response rate of 84.4% of G.P.s and 90% of District Nurses. A Likert Scale to prioritise 11 'main local palliative care services' was utilised. By including prescribed areas to rate within the questionnaire opinions respondents can express through the questionnaire are limited. However, the subjects in Barclay et al (1999) did not have commissioning responsibilities. Therefore the findings of Barclay et al (1999) cannot inform the current study.

The commissioning structure used with the NHS is currently changing. Six weeks after the general election in 2010 a white paper, "Equity and Excellence: Liberating the NHS", was published that proposed profound changes to the structure and organization of the health service with a shift of financial responsibility for securing care from PCTs to GP groups. General practitioners and their practices are expected to come together to form consortia within a local area to commission services for a community. However, despite the potential for change politically and within the infrastructure of commissioning, the outcomes and priorities of those responsible for purchasing health services, such as equity of care, the delivery of effective evidence based care and improved functional outcomes for patients, could be expected to remain the same.

4.5 Conclusions from Current Literature

A number of processes have been identified within rehabilitation as having positive effects on services; regular team meetings, goal setting, enhanced therapy levels, timeliness of

assessment and early provision of therapy. Benefits of effectively implementing these processes include enhanced functional recovery, greater participation of patients in the rehabilitation process and financial benefits for the NHS through reduced hospital stay. However, literature evaluating how these processes should occur are conflicting, with some suggesting limited compliance of stroke rehabilitation services to evidence based practice. The following chapters of this thesis will identify national recommendations relating to these areas of service delivery for stroke rehabilitation, followed by an exploration of current compliance of services.

The current literature highlights that stroke patients are dissatisfied with at least one aspect of care, in particular the amount of therapy received, being treated with respect or information provision. However, the research does not explore current limitations to the amount of therapy services are able to offer or the amount of therapy patient would ideally like to receive. Additionally, there is a paucity of research exploring commissioners' priorities when contracting services or staff experience of delivering stroke rehabilitation services. The following chapters of this thesis aim to discover stakeholder opinions of current stroke rehabilitation services within the NHS.

5. Adherence to National Recommendations for Stroke Rehabilitation

5.1 Method

5.1.1 Research questions:

- What are the national recommendations for stroke rehabilitation?
- What is the state of implementation of stroke rehabilitation recommendations in Greater Manchester?

5.1.2 Objectives

- Identify national quality standards for stroke rehabilitation
- Develop framework for stroke rehabilitation from national quality standards
- Establish state of implementation of quality standards within Greater Manchester
- Identify barriers and facilitators to implementation of national quality standards
- Identify areas of inequity in service provision for stroke rehabilitation in Greater Manchester

5.1.3 Design

In order to establish whether stroke rehabilitation teams in Greater Manchester adhered to national standards for stroke rehabilitation, this section of the study was split into two stages. Initially the national recommendations for stroke rehabilitation recommendations were identified and developed into standards, followed by a case note audit of in stroke rehabilitation to establish whether care adhered to the identified standards.

Identification of national recommendations required a literature search to identify recommendations and content analysis of the recommendations identified, followed by consultation with experts in stroke rehabilitation to gain consensus on recommendations selected.

5.1.4 Development of standards

5.1.4.1 Inclusion Criteria

Any published documents relating to stroke rehabilitation in the UK and NHS services were included in the content analysis.

5.1.4.2 Identification of stroke rehabilitation recommendations

To identify recommendations applicable to stroke rehabilitation, a hand and electronic search of all national documents relating to stroke rehabilitation was carried out.

Electronically, the web page of each clinical governing body of professionals involved in the assessment and treatment of stroke patients was visited to locate their most recent guidelines in stroke care. This included:

Royal College of Nursing (<http://www.rcn.org.uk/>)

Royal College of Physicians (<http://www.rcplondon.ac.uk/>)

Royal College of Speech and Language Therapists (<http://www.rcslt.org/>)

Chartered Society of Physiotherapists (<http://www.csp.org.uk/>)

British Association of Occupational Therapists and College of Occupational Therapists

(<http://www.cot.co.uk/Homepage/>)

British Dietetic Association (<http://www.bda.uk.com/>)

British Association of Counselling and Psychotherapy (<http://www.bacp.co.uk/>)

In addition the websites of organisations responsible for producing interdisciplinary guidelines for health care such as NHS Improvement (<http://www.improvement.nhs.uk/>), National Institute for Health and Clinical Excellence (NICE) (<http://www.nice.org.uk/>) and Scottish Intercollegiate Guidelines Network (SIGN) (http://www.sign.ac.uk) were also searched for documents containing stroke recommendations. Documents that were specific to stroke care and produced by a UK organisation were included in the analysis. Each document identified in the electronic search was then read and the reference lists searched to identify any further documents which met the inclusion criteria. Any relevant referenced documents were then located as originals to be included in the analysis. To select documents with content relating to the rehabilitation phase of stroke care a definition of 'rehabilitation' was needed. Rehabilitation was regarded as care that commenced "as soon as the diagnosis of stroke is established and life-threatening problems are under control. The highest priorities during this early phase are to prevent a recurrent stroke and complications, ensure proper management of general health functions, mobilize the patient, encourage resumption of self-care activities, and provide emotional support to the patient and family" (Duncan et al, 2005). The UK included England, Scotland, Wales and Northern Ireland.

5.1.4.3 Content Analysis of the Identified Documents

All identified documents were analysed by the researcher using content analysis to identify specific recommendations for stroke rehabilitation (Krippendorff, 2004; Denzin and Lincoln, 2008; Neuendorf, 2002). This approach was selected to allow identification of the information within the documents using a systematic categorisation approach (Grbich, 2007). Each retrieved document was read sentence by sentence with any sentence relating

to stroke rehabilitation extracted. Each separate extracted sentence was considered a discrete unit. Once all units had been identified from the located documents the researcher read the content, observing emerging categories.

Four categories emerged; the structure of stroke rehabilitation services, management of stroke care, secondary prevention and the transfer of care from acute to community settings. Once the emergent categories had been identified the researcher coded each separate unit into one of the four categories (Bernard, 1994). The resulting recommendations within the 'management of care' category were further subdivided into categories relating to the National Clinical Guidelines for Stroke, 3rd Edition (Royal College of Physicians, 2008). This was achieved by repeating the process of coding of each unit to the subcategory. This resulted in 23 sub-categories in the 'management of care' category. The 'structure of stroke rehabilitation services' and 'transfer of care' were also subdivided according to categories emerging from the identified recommendations; six within 'transfer of care' and three within 'structure of rehabilitation services'.

Once coding allocated each unit into a category, duplications were removed and the remaining categories amalgamated into one document by the researcher. Where conflicting recommendations were identified, the more stringent recommendation was included. This process produced a total of 294 recommendations.

In order to address the principle of inter-coder reliability (Berger, 1991) and satisfy the criteria of reliability (Bowling, 2002) the completed document was critically reviewed by three expert clinicians. They were selected on the basis of their experience in stroke rehabilitation, familiarity with national guidelines and specialist roles in the field. This

included a nurse consultant at a comprehensive stroke centre, a professor of stroke rehabilitation and a Programme Manager of a Stroke Network. All three reviewers were given guidance to comment on the selection of recommendations included, whether they accurately reflected current national guidelines for stroke rehabilitation and whether there were any omissions. They also commented on the clarity of the wording and presentation and the categories used. Any comments were discussed amongst the three reviewers until a consensus was reached.

From the total number of recommendations (n = 294), 21 'core recommendations' were selected for use in the case audit by the researcher to assess the quality of stroke rehabilitation services and adherence to the national recommendations. A 'core' recommendation fulfilled the criteria of relating to all stroke rehabilitation patients, regardless of impairment and severity. These included 13 which related to general service delivery and eight related to delivery of care to specific patients. These were divided into two separate audit documents; one service overview audit including 13 standards (detailed in section 4.4.2 and table 2) and one patient specific audit including eight standards (detailed in section 4.4.2 and table 3).

5.1.4.4 Consensus of standards

Once the core recommendations had been identified they were converted into standards by the researcher by making them specific, measurable and timely, where appropriate. Once developed the standards were reviewed by the three expert clinicians and the researcher until a consensus regarding the wording of the standard was agreed. Once the core standards had been selected, external validity was sought from a larger group of clinicians working in stroke rehabilitation. The selected standards were taken to an established multi-

disciplinary group working to improve the delivery of stroke rehabilitation services within GMCCSN (n=24).

They were requested to consider the proposed standards against the following criteria:

- The content was an accurate reflection of current national stroke rehabilitation recommendations
- No duplication occurred in the standards
- No omissions occur in the content of the standards
- Standards are applicable to all stroke rehabilitation patients regardless of severity of stroke, gender, age or geographical location

Consensus was achieved through a voting process following a discussion amongst the group.

The group discussed each standard separately using the above criteria, any amendments made and then each member indicating by show of hand whether they were in agreement with the standard. This process allowed for any uncertainty to be expressed by members of the group and peer opinion to be explored. One standard was a source of debate; *'all patients should receive a minimum of 45 minutes of physiotherapy, occupational therapy and speech and language therapy per day as appropriate for the individual's needs.'* Two members of the group felt this was unrealistic as it was unachievable within current staffing levels. However, the standard was retained as the majority of the group agreed that standards should define the 'gold standard' rather than current level of care and there was support for it within national recommendations (Accelerated Stroke Metrics v9 (RCP, 2010); Stroke Service Specification (BASP, 2005); National Clinical Guidelines for Stroke 3rd Ed. (RCP, 2008); Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009); Quality Standards for Stroke (NICE,

2010).

As a further layer of validation stroke rehabilitation professionals attending a GMCCSN conference, were provided with a formal presentation featuring the 21 core standards. This is also in line with evaluation that all stakeholders should be included in the research in order to facilitate implementation of any change as a result of the research and to facilitate access to the information required to complete the research. All attendees were also provided with a paper copy of the 21 standards and asked to comment on their content and to discuss with any absent team members. Comments were invited either verbally or electronically to the researcher regarding suitability for all stroke rehabilitation patients, omissions or duplications. In addition the standards were posted on the GMCCSN stroke rehabilitation web page for a four week consultation period. No comments or suggestions for alteration of the standards were received during this consultation period and therefore remained unaltered. Once the consultation period was completed the standards to be used within this project were finalised (appendix D and E). This process also provided the additional benefits of engaging the stakeholders who would need to be involved in collecting information for the required case note audit and any subsequent service improvements.

5.1.5 Audit

An audit was undertaken against the selected core standards (section 4.4.2) to address the following study objectives:

- Whether stroke rehabilitation service adhere to identified recommendations
- Identify areas of sub-optimal service delivery
- Identify areas for future service development
- Identify areas of inequity in service provision for stroke rehabilitation in Greater

Manchester

- Identify potential good practice within Greater Manchester stroke rehabilitation services

Each participating team completed one service overview audit of 13 standards and ten patient specific audits of case notes including eight standards. Ten case notes were chosen for the patient specific audit due to pragmatic restrictions of the length of the research and is a similar approach to that taken by the national Sentinel Audit (Royal College of Physicians).

5.1.5.1 Inclusion Criteria

All eleven sites offering stroke rehabilitation services within Greater Manchester met the entry criteria and were approached via letter to the service manager (appendix B).

Information sheets (appendix C) were provided, requiring written agreement to participate from the Chief Executive of the Trust.

The entry criteria for participation of the trusts were as follows:

- ✦ A service providing stroke rehabilitation services
- ✦ Providing a service to residents of Greater Manchester

The following ten out of the possible eleven stroke rehabilitation teams met the criteria and agreed to participate:

- Salford Royal Foundation Trust (Hope Hospital)
- Bolton Royal Hospital NHS Foundation Trust (Royal Bolton Hospital)
- Trafford Healthcare Trust (Trafford General Hospital)
- Central Manchester Foundation Trust (Manchester Royal Infirmary)
- South Manchester Foundation Trust (University Hospital South Manchester)

- Wrightington, Wigan and Leigh NHS Foundation Trust (Royal Albert Edward Infirmary)
- Stockport Foundation Trust (Stepping Hill Hospital)
- Pennine Acute Hospitals NHS Trust (Royal Oldham Hospital, Fairfield Hospital)
- Tameside NHS Foundation Trust (Tameside General Hospital)

Of these participating sites seven were district stroke centres (DSCs) within Greater Manchester and three were Primary Stroke Centres (PSCs).

For each team staffing levels and the type of hospital (district stroke centre / primary stroke centre) were obtained through a written request to the local operational manager for the stroke rehabilitation team.

Each site nominated a member of the stroke rehabilitation team with experience in case note audit to complete the audit for this study. The clinical records from 10 complete, consecutive admissions to each participating site from 1st January 2011 were reviewed by the nominated team member against the standards in the patient specific audit and marked using a yes/no score sheet provided by the researcher (appendix G). The researcher repeated the audit on 10 randomly assigned case notes from the 100 returned to assess the accuracy of the data collection. Each site was requested to complete the audit on 10 consecutive admissions as this is reflective of existing audits within stroke such as the Sentinel Audit (RCP).

The nominated team member also reviewed the service against the service overview standards. This was performed only once as the standards related to the processes and structure which should be in place.

For both sections of the audit, a data collection form was constructed which the reviewer in each participating sites completed using the paper or electronic version. The reviewers rated whether each standard included in the audit had been achieved using a 'yes' or 'no' score (Appendix G). The researcher verified selected standards after the data had been returned by requesting additional information such as transfer of care documentation, self referral policies and mood pathways in order to ensure reliability of the data provided.

5.1.6 Statistical Analysis

Statistical analysis was performed using SPSS v.17.0. Descriptive statistical analysis was carried out to analyse compliance of teams to the service overview standards and patient specific standards. All data returned for compliance to patient specific standards was ordinal therefore non-parametric tests were chosen to analyse this data. A Kruskal Wallis test was used to analyse whether a variation in compliance to patient specific standards existed as a between group analysis of variance between three or more groups was required. Where a difference was identified by the Kruskal Wallis test, a Chi squared test was used to analyse whether a difference in compliance existed between district and primary stroke centres, as only two categorical variables were present. A Mann Whitney test was also utilised as a non-parametric alternative to the independent t-test to compare medians between two independent groups to identify whether a difference was evident between the compliance of teams to the standards and the staffing levels of therapists at each site. For this analysis minimum staffing levels were calculated based on patients receiving a minimum of 45 minutes of therapy per day from each required therapy (BASP, 2005; RCP, 2008; NICE, 2010) plus an additional 15 minutes administration time per contact with each patient. Based on a 10 bed unit 1.6 whole time equivalent (WTE) physiotherapist and occupational therapists

would be required. This calculation was based on:

- ⤴ 60 minutes per patient = 600 minutes of therapist time required for 10 patients per day.
- ⤴ Therapists are employed to work 7.3 hours (438 minutes) per day which includes meeting time. For this calculation one hour (60 minutes) was allocated per day to attend meetings = 378 minutes available therapy time per therapist, per day.
- ⤴ $600 \text{ minutes} / 378 \text{ minutes} = 1.58 \text{ WTE therapists required.}$

However, approximately 30% of stroke patients present with communication difficulties and a further 30% have swallowing difficulties, both requiring assessment and intervention from a speech and language therapist. Therefore a calculation of 60% of stroke patients would require a Speech and Language Therapist; $60\% \text{ of } 1.58 \text{ WTE} = 0.95 \text{ WTE Speech and Language Therapists required per 10 beds.}$

Therefore, for the current study, minimum therapy staffing levels have been calculated to be 1.58 WTE Occupational Therapists, 1.58 WTE Physiotherapists and 0.95WTE Speech and Language Therapists, which totals 4.11 WTE therapists per 10 beds.

5.2 Results

5.2.1 Content analysis of national documents

Fifteen documents were identified from the search of the literature and included in content analysis to identify recommendations relating to stroke rehabilitation:

- National Stroke Strategy (Department of Health, 2007)
- National Clinical Guidelines for Stroke, 3rd Ed (National Institute for Health and Clinical Excellence, 2008)
- Progress in Improving Stroke Care (Department of Health, National Audit Office, 2010)
- Supporting Life After Stroke (Care Quality Commission, 2011)
- Stroke Quality Standards (National Institute for Health and Clinical Excellence, 2010)
- Accelerated Stroke Improvement Metric v9 (NHS Improvement, 2010)
- Stroke Rehabilitation Guide: Supporting London Commissioner to commission quality services in 2010/2011 (Healthcare for London, 2009)
- National Service Framework for Older People (Department of Health, 2001)
- Stroke Service Specification (British Association of Stroke Physicians (BASP) Service Development and Quality Committee, 2005)
- Medical Rehabilitation in 2011 and Beyond (Royal College of Physicians, 2010)
- Royal College of Speech and Language Therapists Clinical Guidelines (Royal College of Speech and Language Therapists, 2005)
- Management of patients with stroke: Rehabilitation, prevention and management of

complications and discharge planning (Scottish Intercollegiate Guidelines Network, 2010)

- Better Heart Disease and Stroke Care Action Plan (NHS Scotland, 2009)
- Stroke Sentinel Audit (Royal College of Physicians, 2010)
- Occupational Therapy Concise Guidelines for Stroke 2008 (Royal College of Physicians, 2008)

From the above documents, 294 separate recommendations were identified. From these, content analysis revealed 4 overarching themes; overall structure of stroke rehabilitation services (n= 43), management of specific elements of care (n= 191), secondary prevention (n= 7), and transfer of care and community based rehabilitation (n= 53). Each of the 294 recommendations were distributed into one of the four themes. To make it more manageable, the largest category (management of specific areas of care, n=191) was subcategorised using the National Clinical Guidelines for Stroke, 3rd Edition (Royal College of Physicians, 2008) as a guide into 31 subsections. The following table shows how the recommendations were grouped and how they relate to the four overarching categories.

Table 1: Categories and subcategories of recommendations

Category	subcategory
Structure of stroke rehabilitation service	Specialist stroke rehabilitation
	Patient and family involvement
	Goal setting
Management of care	1. eating and drinking (a) swallowing (b) oral health
	Bowel and bladder impairment and sexual dysfunction
	Pain (a) shoulder pain
	Motor impairment
	Mobility
	Upper limb function
	Sensory loss
	Communication (a) aphasia
	Cognitive and perceptual impairment
	Visual impairment and hemianopia
	Mood disorders (a) depression (b) anxiety (c) emotionalism
	Capacity
	Social interaction
	Personal activities of daily living
	Adaptations
	Vocational rehabilitation and activities
	Driving
Secondary prevention	
Transfer of care and community rehabilitation	Assessment and preparation of home environment
	Transition of care
	Discharge to nursing care
	Provision of community based care and rehabilitation
	Early supported discharge
	Information provision

Many of the recommendations were repeated in several of the source documents, particularly in ‘structure of stroke rehabilitation service’, ‘secondary prevention’ and ‘transfer of care and community rehabilitation’. However conflicting recommendations between the source documents were found only twice. The *Stroke Rehabilitation Guide: supporting London commissioners to*

commission quality services in 2010/2011 (Healthcare for London) advocate patients receive a copy of their goals within one week of admission, whereas *Quality Standards for Stroke (NICE)* suggest this occurs within 5 days. The more stringent recommendation was accepted.

Differing recommendations were also identified surrounding a key worker or point of contact. The *Stroke Rehabilitation Guide: Supporting London Commissioners to Commission Quality Services in 2010/2011 (Healthcare for London, 2009)* recommend 'a named key worker should be identified for each patient in each care setting'. Whereas *Quality Standards for Stroke (NICE, 2010)* specifically recommend that the 'carer of patients with stroke are provided with a named point of contact for stroke information, written information about the patients diagnosis and management plan and sufficient practical training to enable them to provide care'. Both acknowledge the need for one person to be identified as the lead member of the team to act as a contact but they vary regarding to the name of this role and who they are intend to be a contact for. NICE provide greater detail regarding the actions required to fulfil this role. For the purpose of this study the *Healthcare for London* recommendation was utilised as the more general recommendation compared to NICE'S description of the role.

5.2.2 Audit

The recommendations that were relevant to every patient receiving stroke rehabilitation were used to evaluate services. As such, the recommendations in the 'structure of stroke rehabilitation services' and 'transfer of care and community rehabilitation' themes were used to develop standards to audit stroke rehabilitation services. Within these subcategories 21 recommendations which related to all stroke rehabilitation patients, were identified, 13 of which related to overall

service provision and eight related to specific aspects of patient care. Each recommendation was amended to form a specific, measurable audit standard (Table 2 and 3).

Table 2: The standards relating to overall service provision

Standard	Source
If the patient needs ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment they are treated in a specialist stroke rehabilitation unit	Quality Standards for Stroke (NICE, 2010)
There are no waiting lists for stroke rehabilitation within the hospital setting	Stroke Rehabilitation Guide: Supporting London Commissioners to commission quality services in 2010 / 2011 (Healthcare for London, 2009) Stroke Service Specification (BASP, 2007)
MDT structured team meetings occur at least weekly	Scottish Intercollegiate Guidelines Network, (2010) Stroke Service Specification (BASP, 2005) National Clinical Guidelines for Stroke 3 rd Ed. (RCP, 2008) National Stroke Strategy (2007)
Active specialist stroke rehabilitation is provided for a minimum 6 days a week for all patients	National Stroke Improvement Programme
The Stroke Rehabilitation Unit demonstrates specific strategies to actively involve families and carers in day to day care and	Stroke Service Specification (BASP, 05)

rehabilitation	
The stroke rehabilitation unit has specific strategies to maximise patients' activity and opportunities to practice functional tasks throughout their day	National Clinical Guidelines for Stroke 3 rd Ed. (RCP, 2008)
Transition to community rehabilitation services is seamless with no waiting time	Accelerated Stroke Metrics v9 (2010) Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009)
The inpatient Stroke Rehabilitation Service provides comprehensive information to community services and primary care in a timely manner prior to patient discharge to community services	BASP, 2010 National Clinical Guidelines for Stroke 3 rd Ed. (RCP, 2008)
Where patients are transferred to community services, they will be followed up by specialist stroke community rehabilitation services within 72 hrs or within 24 hours for Early Supported Discharge schemes	CQC, 2010 Accelerated Stroke Metrics v9 (2010) Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009) Quality Standards for Stroke (NICE, 2010)
A self referral policy to re-access specialist rehabilitation services is in place	Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009)

<p>A pathway to assess and treat mood is in place</p>	<p>Accelerated Stroke Metrics v9 (2010)</p> <p>National Stroke Strategy (2007)</p> <p>Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009)</p> <p>National Clinical Guidelines for Stroke 3rd Ed. (RCP, 2008)</p> <p>Quality Standards for Stroke (NICE, 2011)</p>
<p>An Early Supported Discharge Team is in place</p>	<p>Accelerated Stroke Metrics v9 (2010)</p> <p>National Stroke Strategy (2007)</p> <p>Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009)</p> <p>Progress in Improving Stroke Care (NAO, 2010)</p>
<p>A service to review all stroke survivors at 6 months after the stroke is operational</p>	<p>Accelerated Stroke Metrics v9 (2010)</p> <p>National Clinical Guidelines for Stroke 3rd Ed. (RCP, 2008)</p> <p>National Stroke Strategy (2007)</p> <p>Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009)</p>

	Progress in Improving Stroke Care (NAO, 2010)
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Table 3: Patient specific standards

Standard	Source
Patients spend at least 90% of their stay on a specialist stroke ward	National Stroke Strategy, 2007
A named key worker is identified for each patient in each care setting	Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009) Quality Standards for Stroke (NICE, 2010)
Rehabilitation begins for patients with enduring impairments and activity limitations as soon as they are medically stable and able to tolerate active treatment and continues whilst the ability to benefit remains and as long as there are realistic goals	National Stroke Strategy (2007) Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009)
Patients receive negotiated goals within 5 days of admission, in an appropriate format	Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009) Quality Standards for Stroke (NICE, 2010) (within 5 days)
The patient entering a period of active rehabilitation is screened for common	National Clinical Guidelines for Stroke 3 rd Ed. (RCP, 2008)

<p>impairments using standardised measurement tools within one week of arrival using locally agreed tools and protocols</p>	
<p>Patient receives a minimum of 45 minutes of each required therapy per day as appropriate for the individual's needs</p>	<p>Accelerated Stroke Metrics v9 (2010) Stroke Service Specification (BASP, 2005) National Clinical Guidelines for Stroke 3rd Ed. (RCP, 2008) Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011 (Healthcare for London, 2009) Quality Standards for Stroke (NICE, 2010)</p>
<p>Patient and / or carer receives a copy of a joint health and social care plan upon leaving hospital</p>	<p>Accelerated Stroke Metrics v9 (2010) National Stroke Strategy (2007) Progress in Improving Stroke Care (NAO, 2010)</p>
<p>Patient is screened for depression by a service providing psychological support capable of managing mood, behaviour or cognitive disturbance within 6 weeks of the stroke</p>	<p>Accelerated Stroke Metrics v9 (2010) Stroke Guidelines 3rd Ed (RCP, 2008) Quality Standards for Stroke (NICE, 2010)</p>

5.2.2.1 Results of Service overview audit

Ten stroke rehabilitation units participated in the audit of service provision and the retrospective case note audit of patient care. Three services were part of a primary stroke centre and seven formed part of a district stroke service. Disparity was evident between adherence to standards and also amongst the services delivered by stroke rehabilitation teams. All teams carried out a multidisciplinary team meeting at least weekly. Three teams demonstrated specific strategies to actively involve families and carers, provided active rehabilitation 6 days a week and had a pathway to assess and treat mood disorders in place. Only one team was delivering reviews six months post stroke (Table 4). Chi squared tests identified that there were no significant differences in compliance with the service provision standards between the stroke rehabilitation units ($p=0.110 - 1.000$) (Table 5).

Table 4: Compliance to service provision standards

Standard	Number of teams who met the standard (n=10)	P value
MDT structured team meetings at least weekly. The MDT meeting should include AHPs, nurses, medical and social services team members	10	0.206
There should be no waiting lists for stroke rehabilitation within the hospital setting	7	0.206
Patients who need ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment should be treated in a specialist stroke rehabilitation unit with access to a specialist MDT, dedicated social worker and psychological input	7	0.206
The hospital inpatient Stroke Rehabilitation Service provides comprehensive information to community services and primary care in a timely manner prior to patient discharge to community services	7	0.206
Where patients are transferred to community services, they will be followed up by specialist stroke community rehabilitation services within 72 hrs or within 24 hours for ESD.	7	0.206
A self referral policy to re-access specialist rehabilitation services is in place and the patient and family are aware of re-referral routes	6	0.206
Transition to community rehabilitation services should be seamless with no waiting time. Each patient should have times, dates and locations of follow up appointments upon leaving hospital and the name and contact details of people who will be involved in their care upon leaving hospital	5	1.000
The stroke rehabilitation unit should have specific strategies to maximise patients' activity and opportunities to practice functional tasks throughout their day	4	0.527
Early Supported Discharge Team is in place	4	0.527
The Stroke Rehabilitation Unit should demonstrate specific strategies to actively involve families and carers in day to day care and rehabilitation	3	0.206
Active specialist stroke rehabilitation should be provided for a minimum 6 days a week for all patients	3	0.206
A mood pathway is in place	2	0.206
The existence of a service delivering reviews for all stroke patients surviving at 6 months after the stroke	1	0.110

The number of standards which were met varied across the teams, between 2 and 13,

demonstrating the inequity of service provided (Table 5).

Table 5: Individual Team compliance to the overall service provision

Team	Treated in a specialist stroke rehabilitation unit	No waiting list	Structured MDT weekly	Active stroke rehabilitation 6 days a week	Strategies to maximise social participation	Strategies to actively involve the family	Seamless transfer to community services	Hospital team provides information to community	Follow up in community within 72 hours / 24 hours (ESD)	Self referral policy in place	Early supported discharge team	Mood pathway in place	6 month review	Total number of standards complied with at each team
1	No	No	Yes	No	No	No	Yes	No	Yes	No	No	No	No	3
2	No	Yes	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	5
3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	11
4	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	No	8
5	Yes	Yes	Yes	No	Yes	No	No	No	Yes	No	No	No	No	5
6	No	No	Yes	Yes	No	No	No	No	No	No	No	No	No	2
7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	13
8	Yes	Yes	yes	No	No	No	No	Yes	No	Yes	No	No	No	5
9	Yes	Yes	Yes	No	No	No	No	Yes	No	Yes	Yes	No	No	6
10	Yes	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	8
Total teams complied with standard	70%	70%	100%	30%	40%	30%	50%	70%	70%	60%	40%	20%	10%	

5.2.2.2 Case Note Audit of Specific Aspects of Patient Care

Compliance rates varied between and within standards. The standards regarding patients spending at least 90% of their hospital inpatient stay on a specialist stroke ward and patients beginning rehabilitation as soon as they are medically stable had the highest compliance rate with a mean of 93% and 96% respectively. Allocating a named key worker and providing a joint health and social care discharge plan had the lowest compliance with 15% and 4% respectively (Table 6).

Table 6: Percentage of cases that comply with each patient specific standard

	90% of stay on specialist unit (% compliance rate)	Key worker (% compliance rate)	Joint Health and Social care Discharge plan (% compliance rate)	Rehabilitation begins as soon as stable (% compliance rate)	Mood assessment by a service capable of managing mood disturbance (% compliance rate)	Assessment within one week (% compliance rate)	Minimum 45 minutes required therapy per day (% compliance rate)	Documented MDT goals within 5 days (% compliance rate)
Team 1	100	0	0	100	0	100	0	100
Team 2	90	0	0	100	0	80	30	60
Team 3	80	0	0	100	0	90	80	100
Team 4	100	50	0	90	90	90	0	50
Team 5	100	0	20	100	20	70	0	60
Team 6	70	0	0	80	0	20	0	0
Team 7	100	100	10	100	90	100	100	100
Team 8	100	0	0	100	80	0	10	100
Team 9	100	0	0	100	70	30	0	30
Team 10	90	0	10	90	90	10	0	0
Mean compliance rate	93	15	4	96	43	59	22	60
SD	10.5	33.7	6.9	6.9	41.9	39.5	37.3	40.2
Range	70 – 100	0 -100	0 – 20	80 – 100	0 -90	0 – 100	0 – 100	0 - 100
Kruskal Wallis p value	0.082	0.000	0.253	0.253	0.000	0.000	0.000	0.000

For three standards, the Kruskal Wallis test revealed no significant differences (below) in compliance rates indicating equitable service delivery:

rehabilitation commences as soon as the patient is medically stable ($p = 0.253$)

joint health and social care discharge plan provided ($p = 0.253$)

90% of total hospital inpatient stay on a stroke ward ($p = 0.282$)

The other five standards had a broad range of compliance (0-100%) with a Kruskal-Wallis test revealing statistically significant differences in compliance between services. These were:

assessment of impairment within one week ($p = 0.000$)

45 minutes of each required therapy per day ($p = 0.000$)

MDT goals documented within five days of assessment ($p = 0.000$)

mood assessment by a service capable of managing mood disturbance ($p = 0.000$)

Key worker allocated ($p = 0.000$)

Each are detailed below.

Assessment within one week of admission

Only two services completed assessments within one week for all ten patients and one did not provide this for any patients (Table 7); these differences were significant ($p = 0.017$) and indicated that district stroke units completed assessments in a timely fashion for fewer patients than primary stroke centres (Table 8).

Table 7: Percentage of patients receiving assessment within one week of admission

Team	Compliance to standard (%) (n=10)
Team 1	100
Team 2	80
Team 3	90
Team 4	90
Team 5	70
Team 6	20
Team 7	100
Team 8	0
Team 9	30
Team 10	10

Table 8: Association of type of hospital and providing assessment within one week of admission

	No (%) (n = 100)	Yes (%) (n = 100)
District General Hospital	47.5	52.5
Primary Stroke Centre	15	85

Mood assessment by a service capable of managing mood disturbance

Five teams had a compliance rate over 70%, one team assessed only 20% of patients and four teams assessing none of their patients (0%). A Kruskal-Wallis Test revealed a significant differences in the compliance rates ($p=0.000$) although there was no significant association between the type of hospital and the number of patients who received a mood screen ($p = 0.39$).

Multidisciplinary goals documented

Two teams provide goals for 60% of patients, one for 50% of patients, one 30% and two teams for no patients (Table 9). A Kruskal-Wallis Test revealed a statistically significant difference in teams documenting MDT goals within five days of assessment ($p=0.000$) indicating inequity in service delivery. A chi square test for independence (with Yates continuity Correction) revealed no significant association between the type of hospital and documenting MDT goals ($p = 0.74$).

Table 9: Percentage of patients with documented MDT goals

Team	Compliance to standard (%) (n=10)
Team 1	100
Team 2	60
Team 3	100
Team 4	50
Team 5	60
Team 6	0
Team 7	100
Team 8	100
Team 9	30
Team 10	0

45 minutes of each required therapy per day

Only one team provided 45 minutes of each therapy per day for 100% of patients and 6 teams did not provide this for any of the patients (0%) (Table 10) .

Table 10: Percentage of patients receiving 45 minutes of each required therapy per day

Team	Compliance to standard (%) (n=10)
Team 1	0
Team 2	30
Team 3	80
Team 4	0
Team 5	0
Team 6	0
Team 7	100
Team 8	10
Team 9	0
Team 10	0

A chi square test for independence (with Yates continuity Correction) revealed a moderate association between the type of hospital and patients receiving 45 minutes of therapy ($p = 0.00$), with district stroke units provided 45 minutes of each required therapy for fewer patients than primary stroke centres (Table 11).

Table 11: Association of type of hospital and providing 45 minutes of therapy

	No (%) (n = 100)	Yes (%) (n = 100)
District General Hospital	85	15
Primary Stroke Centre	50	50

Key worker allocated

Only one team provided a key worker to each patient 100% of patients and eight teams did not provide this for any of the patients (0%) (Table 12).

Table 12: Percentage of patients being allocated a key worker

Team	Compliance to standard (%) (n=10)
Team 1	0
Team 2	0
Team 3	0
Team 4	50
Team 5	0
Team 6	0
Team 7	100
Team 8	0
Team 9	0
Team 10	0

A chi square test for independence (with Yates continuity Correction) revealed a significant association between the type of hospital and patients being allocated a key worker ($p = 0.00$), with district stroke units allocated a key worker for fewer patients than primary stroke centres (Table 13).

Table 13: Association of type of hospital and allocating key worker

	No (%) (n = 100)	Yes (%) (n = 100)
District General Hospital	93.8	6.3
Primary Stroke Centre	50	50

Staffing levels

A Mann-Whitney Test revealed no significant difference in compliance to either set of standards between staffing levels ($p = 0.22 - 1.00$) (Table 14 and 15).

Table 14: Mann-Whitney Test results of staffing levels and compliance to service overview standards

	Specialist stroke unit	No waiting list	Structured MDT meeting weekly	Active rehab 6 days per week	Strategies to maximise social participation	Strategies to involve families	Seamless transfer of care to community services	Hospital team provide information to community teams	Followed up in community within 24 hours or 72 hours	Self referral policy in place	Mood pathway in place	Early Supported Discharge Team in place	6 month review commissioned
Mann-Whitney U	5.000	6.000	8.000	5.000	4.000	5.000	8.000	5.000	6.000	4.000	6.000	7.000	7.000
z	-.982	-.655	.000	-.982	-1.225	-.982	.000	-.982	-.655	-1.225	-.655	-.306	-.500
Asymp. Sig	.326	.513	1.000	.326	.221	.326	1.000	.326	.513	.221	.513	.759	.617

Table 15: Mann-Whitney Test results of staffing levels and compliance to patient specific standards

	Rehabilitation begins as soon as patient is stable	Assessment within one week	Named key worker allocated to each patient	Patient receives minimum 45 minutes of each therapy per day	MDT goals documented within 5 days	Patient receives Joint Health and Social Care upon leaving hospital	90% of hospital stay on a specialist stroke ward	Mood Assessment carried out within 6 weeks of stroke
Mann-Whitney U	6.500	2.000	3.000	4.000	1.500	6.500	8.000	3.000
z	-.484	-1.581	-1.314	-1.177	-1.763	-.484	0.000	-1.220
Asymp. Sig	.628	.189	.456	.239	.078	.628	1.000	.222

5.2.3 Summary of Compliance to Standards

In summary there was a broad range of both the number of standards passed and the level of compliance between the teams indicating inequitable service delivery.

Services which were part of a primary stroke service had higher compliance to a number of stroke rehabilitation standards, suggesting a two tier service across a regional model of stroke rehabilitation. However, due to the structure of the services, only two primary stroke centres participated, limiting the representation of the sample and validity of this conclusion. Staffing levels did not impact team compliance to national standards, either in overall service delivery or those standards specifically relating to individual patient care.

5.3 Discussion

5.3.1 Background

The aims of this study were to identify the national recommendations for stroke rehabilitation, compile standards specifically for rehabilitation and evaluate whether stroke rehabilitation services adhere to these standards. This has been achieved and, in doing so, is the first time the recommendations for stroke rehabilitation in the UK have been systematically compiled and standards specifically for stroke rehabilitation have been produced. The resulting document has the potential to be a reference for audit of care and service improvement. Although duplication and occasional conflicting recommendations were found there was a great deal of agreement amongst the existing guidelines and recommendations for stroke rehabilitation. The resulting compendium of standards is only applicable to health services in the UK, due to the individual nature of the NHS. It will also require amendment as further evidence influences national recommendations.

Twenty-one standards that are relevant to all patients undergoing stroke rehabilitation were identified in national guideline documents for stroke care in the UK. All the standards were implemented by at least one stroke rehabilitation team of those audited, with one team delivering treatment in accordance with all of the selected standards, demonstrating that this is achievable within the NHS setting. Evidence that all services provided the same process within their service, was found for only one standard '*the presence of a weekly multidisciplinary team meeting (MDTM)*'. Variance in the standard of specific aspects of care was found with the other standards. Variance in the delivery of health services has been noted previously (Bernhardt, et al, 2008; Marmot Review, 2010; Appleby et al, 2011). In the current study the greatest variance in standards of care was found in the standards which had been most recently published such as '*45 minutes of each required therapy per day*' (Accelerated Stroke Metrics v9, 2010; Quality Standards for Stroke, NICE, 2010; Stroke Rehabilitation Guide: Supporting London commissioners to commission quality services in 2010/2011, Healthcare for London, 2009) and a '*joint health and social care plan*' (Accelerated Stroke Metrics v9, 2010; Progress in Improving Stroke Care, NAO, 2010), which had a mean compliance rate of 22% and 4% respectively. This is in comparison to those standards published earlier such as '*MDT structured team meetings occur at least weekly*' (Stroke Service Specification, BASP, 2005) which had a compliance rate of 100% in the current study. This suggests that teams require time to embed change in processes. The longer recommendations feature in national documents, the more aware clinicians are likely to be of them and the more time they have had to make changes to services to adhere to them. Adherence may therefore increase as clinicians become more familiar with the content on recommendations and allow time to make service changes. Time required to embed change is supported by gradual improvements in each Sentinel audit cycle (RCP) such as '*brain scan within 24 hours*' (57.3% in 2006 and 79.9% in 2010) and '*assessment by an Occupational Therapist within four working days*

of admission' (69% in 2008 and 96.2% in 2010).

Only one audit of stroke rehabilitation standards has been published prior to this study; Tyson and Turner (1999) in Southampton and the surrounding district. The current study included the recommendations from 15 documents of national clinical guidelines; Tyson and Turner's work was undertaken before the advent of clinical guidelines and they produced standards and recommendations based on the literature and clinical consensus from the multi-disciplinary team in primary and secondary care from a single district NHS service in England. This is reflective of the increase in focus and development from government and clinical bodies producing more documents in the elapsing 22 years. Although both studies addressed similar areas of recommendation the current study found more specific guidance within the included documents, from which the standards were developed. Most notably, Tyson and Turner (1999) recognised that the amount of therapy delivered was an area of practice that needed improvement however, at that time no specific guidance was given regarding the optimal amount of therapy. The increase in specificity of the guidelines reflects an increase in attention and research within stroke rehabilitation. This increase in the amount of research in the elapsing 20 years since Tyson and Turner (1999) has been used as the evidence base to inform national recommendations, resulting in a greater number of recommendations covering a wider range of processes within stroke rehabilitation. As a result the current study identified a greater range of recommendations from which standards could be developed. Providing timely assessment has shown the most limited improvement between the two audits, from 46% in 1999 (Tyson and Turner, 1999) to 59% within the current study. However, goal planning has increased from 41% in 1999 to 60% within the current study and mood assessment from 21% to 43%. This suggests that stroke rehabilitation services have shown improvement towards meeting national guidelines in the past 20 years in certain aspects of service delivery. However, the results of the current study are not reflected by

those of the Sentinel Audit (2010). The average compliance to these three particular standards of assessment, mood assessment and goal planning in the Sentinel Audit are significantly higher. The standard 'mood assessed by discharge' achieved an average compliance of 94.1% in the Sentinel Audit in 2010, compared to 43% in the current study. The standard 'rehabilitation goals agreed by the multidisciplinary team by discharge' achieved 100% in the sentinel audit (2010), whereas the current study had a mean compliance of 60% to this standard. Timely assessment of impairments is more difficult to make a direct comparison due to the difference in the standards used. The Sentinel Audit divides assessment into two more specific standards of 'Physiotherapy assessment within the first 72 hours of admission' and 'assessment by a Occupational Therapist within four working days of admission'. Within 2010 these two standards achieved a national average compliance of 88% and 96.2% respectively, compared to an overall compliance of 'assessment of impairments within one week of admission', as used within the current study, of 59%. The disparity in results between the current study and the Sentinel Audit conducted in 2010 may suggest that stroke rehabilitation teams within Greater Manchester do not comply with the standards to the same extent as other teams nationally.

5.3.2 Compliance to recommendations

5.3.2.1 Multidisciplinary Team Meetings (MDTMs)

The standard to hold a 'structured MDT meeting at least once a week' was the only recommendation adhered to by all participating teams. This reflects a national picture in which weekly MDTMs have experienced an increase from 96% in 2002 to 99.5% in 2010 (Sentinel Audit, RCP, 2010). This standard is included in all the national guidelines and was one of the earliest to feature (BASP, 2005). This longevity and prominence may account for the strong compliance. Superficially, this highly positive result would not appear to require further attention, however the

presence of a MDTM may not be sufficient to evaluate the effectiveness of team functioning. Literature surrounding MDTMs indicates the meeting itself is a complex process reliant on multiple structures and processes contributing to the effectiveness. It is not the existence of a meeting alone that results in it being an effective process (Ruhstaller et al, 2006; Atwal and Caldwell, 2002) but rather the amalgamation of multiple processes. These processes and structure include communication (Ruhstaller et al, 2006), dominance within the meeting (Vogwill and Reeves, 2008), number of attendees at the meeting (Atwell and Caldwell, 2005), frequency of the meeting (Dutton et al, 2003). If multiple processes contribute to the effectiveness of a MDTM, a standard solely addressing the frequency of the meeting (once a week) is not sufficiently specific to ensure optimal effectiveness.

The standard of a MDTM at least weekly (SIGN, 2010; RCP, 2008; National Stroke Strategy, 2007; BASP, 2005) is based on one meta-analysis (Langhorne et al, 2007) of 31 prospective controlled trials including 6936 participants. It concluded that a core characteristic of coordinated stroke unit care is regular weekly MDTM. However, of the 31 included trials only two specified the presence of a weekly MDTM; the remainder compared organised stroke care to general medical care. Therefore MDTM is not the only factor potentially impacting upon the outcome of the studies. Therefore the presence of the meeting alone is not evidence of an effective MDT. More specific recommendations and standards regarding the structure, methods of appropriate decision making, communications amongst team members and content of the MDTM may be a more appropriate measure of an effective team. Further empirical research is required to evaluate the impact of these factors in isolation on decision-making within the MDTM and length of stay of patients within the acute setting needs to be carried out. The findings of such studies could influence future national guidelines of stroke services, enabling more specific guidelines and standards to be developed.

Current guidelines and literature provide limited details regarding the recommended structure of the MDTMs, with organisation left to local discretion (Fleissing et al, 2006). There is no consensus on issues such as the resources required, how decisions should be made and recorded and what structure of meeting is the most effective (Bydder et al, 2010). SIGN (2010) provides the most detail regarding the content of the meetings; “patient problems are identified, rehabilitation goals set, progress monitored and discharge planned”. With most existing literature on MDTM structure being qualitative, more quantitative research is required to establish the optimal structure, including numbers of attendees and grades of staff, and content of the discussions. These results could then be incorporated into future guidelines and local and national audits. More specifically, recent literature within mental health (Flaherty et al, 2003), trauma (Dutton et al, 2003) and general medical management (Geary and Cale, 2009) have indicated that a meeting more than once a week is effective in reducing length of stay (Dutton et al, 2003), improving communications within the MDT, improving co-ordination of care and increasing skills of staff within a general medical setting (Geary and Cale, 2009). Ellrodt et al (2007) demonstrated that a MDTM of three times per week had a positive impact on a stroke team’s compliance to national recommendations. However, the impact of this increased frequency of meetings on patient length of stay was not explored. Further quantitative research is required specifically within the field of stroke rehabilitation to evaluate the impact of the multidisciplinary team meeting more frequently than once a week on decision making and length of stay. In addition, further research is required to identify the optimal frequency of the MDTMs. Daily board rounds have been identified in the literature as speeding decision-making and facilitating information sharing and goal setting (Geary and Cale 2009). These occur daily (early in the morning), are attended by all staff involved in the patient’s care, and aim to spend one minute per patient discussing their 'plan for the day' and 'plan for the stay'. Regular discussion of discharge planning, as provided by daily board rounds, is

thought to have the potential to increase patient flow (Dutton et al, 2003). Further research is required to evaluate the effectiveness of daily board rounds in comparison to weekly MDTMs in terms of the impact on decision-making, goal setting and length of stay in hospital. The results could then be used to inform future national guidelines and local and national audits.

5.3.2.2 Timely access to specialist stroke rehabilitation

The rehabilitation standards identified within the current study identified two inter-dependent issues of the proportion of inpatient stay spent in specialist stroke services and timeliness of interventions. The two resulting standards of patients spending '*90% of their inpatient stay on a stroke unit*' and '*accessing rehabilitation as soon as the patient is medically stable*' have therefore been considered together. These two standards achieved a high compliance within the current study with a mean of 93% and 96% respectively, with a small range. This suggests minimal variation in the compliance to these standards. A mean compliance rate of 93% within the current study to the standard of '*90% of their inpatient stay on a stroke unit*' is higher than the national picture of 62.2% (Sentinel Audit, RCP, 2010).

A robust body of evidence from systematic reviews of controlled trials (Stroke Unit Trialists' Collaboration, 1997; 2007), with strong external validity, supports improved survival and functional outcomes from treatment in a stroke unit resulting in '*access stroke specialist care as soon as medically stable*' being invariably recommended in national guidance (National Stroke Strategy, 2007; Healthcare for London, 2009; Stroke Service Specification, BASP, 2007). With such a strong evidence base and focus on a national level, teams within this study have been striving to offer specialist stroke rehabilitation for many years, which may account for the high compliance to this standard. Additionally, the treatment of strokes has historically been viewed utilising a medical model. It is only following the more recent publication of the ICF (2001) that a paradigm shift

occurred resulting in the combination of the medical model and social model towards a biopsychosocial model. As a result the principles underlying the medically based recommendation of *'access stroke specialist care as soon as medically stable'* may have been utilised within stroke care for a longer time than other recommendations. A further factor accounting for the high compliance in the current study and the higher compliance than the national picture may be the local financial incentive of Commissioning for Quality and Innovation (CQUIN) (Department of Health, 2008). CQUIN is a national initiative to reward service providers for attaining certain recommendations. The providers are paid a percentage of the total contract value if they have achieved the standard. In August 2010, one of the five 'CQUIN recommendations' applied across the North-West included *'direct admission to a stroke unit within four hours of hospital admission'*. In addition a national database of stroke care quality indicators (Vital Signs, Department of Health), reports to the Department of Health quarterly and includes, 'the percentage of people who were admitted to hospital following a stroke, who then spent 90% of their time on a stroke unit' as a standard. In order to attain a 90% of hospital inpatient stay on a stroke ward the patient must be transferred to a stroke specialist ward with minimal delay.

Research into what is the optimal timing for onset of rehabilitation remains inconclusive (Cifu and Stewart, 1999). It is an important question to answer as it is potentially modifiable, unlike other predictors of functional recovery after stroke such as age or severity of stroke. In a systematic review of the literature, the definition of 'early intervention' used in the primary studies varied from three to 30 days after stroke (Cifu and Stewart, 1999). However, since the publication of this research in 1999, pressures to reduce length of stay in inpatient rehabilitation settings has increased (<http://www.reducinglengthofstay.org.uk/>). Currently the money paid to the acute team for each stroke patient admitted to hospital covers 56 days of care therefore delaying accessing rehabilitation until day 30 of the 56 days of care is 53.5% of the overall time. 30 days, as cited as

'early' by Cifu and Stewart (1999) may no longer be considered as 'early' within the length of time patients receive care. In a cohort study Musicco et al (2003) defined 'early' initiation of therapy as seven days from onset of stroke symptoms, concluding that initiation of therapy within seven days has a positive relationship with functional outcome. This study had a large sample of 1716 subjects but was observational in nature. The conclusions drawn from their study can not, therefore, be solely attributed to timing of onset of rehabilitation as more factors than timing of the initiation of therapy were involved in the patients care. More research is required to investigate this more fully with a randomised control trial comparing initiation of therapy prior and post 7days. The standards developed in the current study did not specify a time scale between admission to hospital and commencement of rehabilitation and neither do the national recommendations (National Stroke Strategy, 2007; Stroke Rehabilitation Guide: Supporting London commissioners to Commission Quality services in 2010/2011, Healthcare for London, 2009). The standard given within the current study is that rehabilitation should *start 'as soon as the patient is medically stable'*, which implies a clinical judgement. Further research evaluating whether objective indicators can be identified to specify when a patient is suitable to enter rehabilitation may be beneficial. This could then inform future national recommendations and assist clinicians in deciding whether patients are ready to enter rehabilitation. However, the distinction between acute care and rehabilitation is perhaps becoming less defined as services managing different stages of the care pathway merge to offer a 'seamless service'.

5.3.2.3 Carry out assessment within one week of admission

The benefits of early initiation of stroke treatment is well documented (Cumming et al, 2008; Teasell et al, 2006; Musicco et al, 2003; Cifu and Stewart, 1999), but for this to occur each patient requires timely assessment to establish their needs. Assessment for stroke patients is prominently featured in national clinical guidance documents (NICE, 2010; SIGN, 2008) and regular data

collection tools (SINAP; Sentinel Audit), however the drive for the inclusion of this standard is through clinical consensus rather than empirical evidence due to an absence of evidence (Teasell et al, 2006). Compliance to this standard has the potential to facilitate patient flow, improve patient outcomes and reduce length of stay. Assessment from a physiotherapist within 72 hours, nutritional assessment within 24 hours and occupational therapy assessment within four days of admission all feature in the local North West Commissioning for Quality and Innovation (CQUIN) (Department of Health, 2010), providing financial benefits if complied with. All of these recommendations are in a shorter time frame than that utilised within the current study therefore higher compliance could be expected. In addition, physiotherapy and occupational therapy assessment also feature in sentinel audit and Stroke 90:10, a recent service improvement project which all teams in the current study participated in (Power et al, 2010). The standard for assessment within particular time-scales featuring in multiple data sets may increase clinician's awareness of the standard which may result in some teams implementing service improvements to increase compliance.

Only two participating teams in the current study provided timely assessment for all patients, with four teams providing this for only 30% of patients or less. The fact that two teams were able to achieve the standard demonstrates that it is achievable but that there is inequity between teams. However, the poor compliance of individual teams within the current study is not reflected in national data collection tools or audits (Sentinel Audit 2010, RCP). The Sentinel Audit (RCP, 2010) separates assessment into occupational therapy, physiotherapy and speech therapy, all of which have recommended time scales of assessment within seven days or less. The most recent Sentinel Audit results (2010) revealed national compliance rates of 83%, 91% and 82% respectively; significantly higher than the mean compliance of 59% in the current study. This is an unexpected disparity as collection methods are similar in the Sentinel Audit and the current study; clinician-

reports from case note reviews. The disparity may be the result of a difference in compliance to the standard nationally and locally within Greater Manchester or alternatively may reflect a Hawthorne effect during data collection for the National Sentinel Audit; clinicians may strive to deliver timely assessment for a short period whilst being studied in order to represent their service optimally.

Further disparity is found between the results of the current and those the data routinely submitted to the Stroke Improvement National Audit Programme (SINAP) (Royal College of Physicians). SINAP is another national database of adherence to stroke care quality indicators. It contains more stringent standards than those in clinical guidelines which were used in the current study. For example, whereas clinical guidelines specify that assessments should be completed within one week, SINAP stipulates that specific Occupational Therapy and Physiotherapy assessment should be completed within 72 hours. Data reported to SINAP by the regional teams participating in the current study over the period of data collection for this study reveals that physiotherapy assessment was completed within 72 hours for 52% - 92% of patients and Occupational Therapy assessment was completed 9% - 89% of the time. The results of SINAP can be compared to that of the current study which found assessment occurred within one week of admission for a mean average of 59% of patients, with a range of 0% to 100%. The data reported by SINAP support the inequity found within the current study.

Interestingly, the average length of stay of the only teams reporting complete compliance with the assessment standard, had the shortest length of stay where as the teams with the poorest compliance had a much longer average length of stay (over three times that of the most effective teams). This suggests that consistent timely assessment may be a function of the organisation of care rather than merely opportunity to make contact with the patients. An earlier assessment is

likely to result in earlier involvement of the stroke MDT therefore facilitating patient flow through the system and reduce length of stay. Further research exploring the impact of timing of assessment on length of hospital stay may help service managers to plan service delivery.

A relationship between the speed with which patient's access rehabilitation and speed of assessment would be expected as patients require assessment before the start of therapy led interventions in rehabilitation. However the current study did not support this speculated relationship. The current study found a poorer performance for the delivery of assessment (mean pass rate 59%; range 0 - 100) than for speed of access to rehabilitation (mean pass rate 96%; range 80 – 100). This may indicate that patients do not receive assessment until they are medically stable, or that rehabilitation is started without thorough assessment. However further research is required to explore any correlation between these factors.

5.3.2.4 Mood Assessment for Stroke Patients

Half the participating stroke rehabilitation teams screened between 70% to 90% of their stroke patients for mood disorders. However of the remaining teams performance was poor; one assessed 20% of patients for mood disorders, while the others did not address mood disorder with any of their patients. This result reveals an inequity in the delivery of mood assessment for stroke patients and was one the poorest compliance rates in the current study, with a mean pass rate of 43%. A clear comparison with the national picture is not possible due to conflicting reports from differing sources. While similar to the national picture of 55% compliance as reported by the RCP (2007) and NAO (2010), the result is lower than the mean compliance of 80% as reported in the recent Sentinel Audit (2010). The decrease in compliance within the National Sentinel Audit may also be a result of a lack of psychologists employed in stroke services. This is a trend unlikely to change within the current economic climate therefore further research exploring the competence

required for other health care professionals to carry out mood assessments may help to shape psychological services within the current service provision. Despite featuring in national recommendation documents since 2007 (National Stroke Strategy, 2007; NICE, 2010), the National Audit Office concluded that assessment of mood had not been widely implemented nationally and therefore was included in the key rehabilitation standard to be monitored in the Accelerated Stroke Improvement assessment (2010).

A potential barrier to the implementation of mood screens may be inconsistencies between guidelines in timing and who should carry out the mood screen which may result in confusion amongst clinicians; the RCP recommend that a mood screen should be carried out 'on entering rehabilitation', while NICE specify assessment that a mood screen should be carried out 'within six weeks of diagnosis' and ASI allow 'six months for assessment'. NICE do not specify who is responsible for carrying out the assessment. Although RCP does not specify that the screen should be carried out "a professional", it is suggested that 'some nurses and therapists will need to be taught how to use standardised questionnaires' implying that nurses and therapists should deliver the a mood screen. As the majority of recovery is achieved at an early stage, and as recovery can be affected by depression; early diagnosis and treatment of depression is important (Swindell et al, 1999). Watkins et al (2007) found that 'significant numbers' of patients were depressed at two weeks and three months post stroke, therefore advocate screening at both of these points in rehabilitation. However, the authors do accept that further research is required to determine the possibility of false negatives in mood screening. Further research identifying optimal timing for mood assessment after stroke would influence future national guidelines. Consistency within guidelines may increase compliance to delivering a mood screen for all stroke patients.

Five teams screened over 70% of patients for mood disorders; four of which have dedicated

psychology input, suggesting that this may enhance assessment of mood. The remaining five teams, with a range of compliance between 0% and 20% , did not have a dedicated psychologist working in the stroke rehabilitation team. This lack of psychology service in stroke is reflected in the national picture in which only a third of stroke units have access to clinical psychology services (RCP, 2008). Commissioners should consider commissioning specific psychological time within stroke services to provide assessments and interventions for patients and carers along with support and training for other disciplines. However, lack of psychology services is unlikely to change within the current economic climate. Therefore further research exploring the competence required for other health care professionals to carry out a mood assessment may help to develop psychological support within current services and increase team's ability to carry out a mood assessment.

Two teams had developed and implemented a care pathway for the assessment and support of mood and both scored highly on this standard. Teams without a care pathway to assess and manage mood disorders may benefit from such service development; although the impact of implementing a pathway in terms of patient and service focussed outcomes is yet to be established. In order to implement such a pathway, effective joint working between primary and secondary care organisations may be required in many locations.

Confusion over the optimal time point to screen for mood disorders could hamper the development of a local pathway. As one of the organisational pressures in the NHS is to reduce length of stay (with some local stroke units have a mean length of stay of only 3-9 days) the mood screen may be most appropriately be carried out by the community teams. However data on quality of stroke care (such as SINAP) is limited to hospital based care. Consequently, some areas carry out a mood screen in the acute setting, when it isn't appropriate, to ensure that it is

completed and the 'box ticked'. Patient care would benefit if acute and community stroke teams agreed responsibility for carrying out a mood screen and national data collection tools should be adapted to reflect the patient pathway and allow for data entry within rehabilitation and community settings.

5.3.2.5 Mood Assessment for Carers of Stroke Patients

Notable omissions in the national guidelines are recommendations regarding the psychological impact of stroke on carers. There is a strong association between patient and carer distress with serious psychological problems and strain being common (Carnwath and Johnson, 1987; Draper and Brocklehurst, 2007; Han and Hayley, 1999; Low et al, 1999). Carers' needs have been highlighted in numerous policy documents over the last decade (The Carers Act 2004; Carers at the Heart of the 21st Century, 2008; White et al, 2007; Recognised, Valued and Supported: Next Steps for the Carers Strategy DoH, 2010)) all of which highlight the need for carers' needs and well-being to be assessed and managed independent of the needs of the person with stroke. Recent publications (Recognised, Valued and Supported: Next Steps for the Carers Strategy DoH, 2010) places responsibility for assessment with Local Authorities rather than health care organisations. A more cohesive approach may be for the same organisation to take responsibility for the assessment and support of mood in both patient and carer, particularly in the management of long term conditions. Further research is required to identify the optimal point of assessment, tool and support required for carers in order for this to be incorporated into future guidelines. The current study did not explore the psychological assessment and support available for carers of stroke patients. However, given the supporting evidence of the psychological impact on carers, future national guidelines should reflect the importance of addressing the psychological care of carers.

5.3.2.6 Multi-disciplinary goals documented within 5 days of assessment

Setting goals for patients to achieve is a fundamental component of rehabilitation (Scobbie, Dixon

and Wyke, 2010) as it improves team working (Sivaraman, 2003), patient involvement in the rehabilitation process (Wressle et al, 2002), acquisition of motor skills (Bower et al, 1996) assessment of outcomes and helped to meet requirements set by professional organizations (Rosewilliam, Roskell and Pandyan, 2011). Most literature supporting the use of goal-setting in rehabilitation have compared MDT processes as a whole rather than investigating goal setting as the sole variable in improving outcomes or length of stay. Without an empirically evidenced structure to inform and direct goal setting, clinicians lack a clear framework to guide how they should address this national recommendation. Further quantitative research is required to explore goal setting as the sole variable on reducing length of inpatient stay, patient involvement in the rehabilitation process and functional outcomes.

A disparity in teams' achievement of the standard to '*set MDT goals within five days of assessment*' was found in the current study, highlighting a variation in compliance to this standard. Four teams achieved this with all patients, demonstrating that this is an achievable standard. Results from the recent National Sentinel Audit of Stroke revealed that nationally 78% of patients had written evidence that their rehabilitation goals were agreed by the MDT within five days of assessment (RCP, 2010), which is higher than the local compliance rate of 60% within the current study. This recommendation was not included in Sentinel Audits prior to 2010 limiting the opportunity for direct comparison and monitoring of national improvement, however previous audits showed that an improvement had occurred in goals being documented by discharge, rather than within the five day time frame, from 68% in 2004 to 94% in 2010. This suggests that most teams do document goals by the point of discharge but the time scale of five days is more challenging. This increase in national compliance of goals documented by discharge between 2004 and 2010 may be because goal-setting (without a specified time frame) is a 'CQUIN target' which rewards compliance financially (Commissioning for Quality and Innovation, Department of Health,

2008). The results from the current study do reflect the national picture that further improvement is required, but found a lower mean compliance rate than nationally. Poorly performing teams therefore need to develop processes to increase the consistency of setting MDT goals within five days of assessment. Further qualitative research observing current practices and interviewing clinicians may help to understand the reasons for poor compliance. Research is lacking to inform teams about the most effective process for goal setting. Further research is required to establish an effective structure for the goal setting process within stroke rehabilitation. This may then inform guidance for services on who should attend, structure for discussion and documentation.

Two national documents (Healthcare for London, 2009; RCP, 2008) relating to stroke rehabilitation describe a recommendation of MDT goals being set for all stroke patients. Both documents state that MDT goals should be set, however there is a discrepancy in the time scale. Healthcare for London (2009) specify patients should have negotiated goals within one week of admission, whereas Quality standard for Stroke (RCP, 2008) suggest multidisciplinary goals are agreed within 5 days. In addition, Quality standard for stroke (RCP, 2008) also specify that the goals must be documented, implying within the patients notes to ensure a paper trail, whereas Healthcare for London detail that the patient must receive a copy of the goals and also that it is in an appropriate format. This inconsistency may be a barrier to compliance which could be improved through a united message from all governing bodies. The inconsistencies may be the result of a lack of robust evidence detailing the optimum time-scale for goal setting, processes required and documentation. Further research may provide more specific detail within this recommendation, however any modifications should allow for local flexibility due to service and individual patient differences.

It is possible that individuals within the MDT do set uni-disciplinary, rather than multidisciplinary,

goals in a timely manner but do not share them with other members of the team and therefore are not meeting the current recommendation. Further research is required to establish whether stroke rehabilitation teams are setting uni-disciplinary rather than MDT goals, and if this is the case whether this is as a result of processes, skills shortage of clinicians or local policies.

Setting and sharing MDT goals with patients has the potential to increase their engagement in the rehabilitation process (Alaszewski et al, 2004; Cott, 2004; Maitra and Erway, 2006; Wressle et al, 1999; Bendz, 2003). Currently recommendations do not specify that patients should be directly involved in the goal setting process. However, such involvement increases engagement in the rehabilitation process (Pollock, 1993) and so future recommendations would benefit from further detail to include patients in the goal setting process. There are major discrepancies between patients and professionals with regard to perception of recovery and focus of rehabilitation (Rosewilliam, Roskell and Pandyan, 2011) with clinicians viewing recovery from the point of the occurrence of stroke while the patients view it as a return to their pre-stroke status (Lawler et al, 1999). As a result of this difference in perception, patients chose goals that improved their level of participation, such as mobility and social integration, in order to recapture their pre-stroke status or adapt to a new life situation (Bendz, 2003; Timmermans et al, 2009; Wressle, Oberg and Henriksson, 1999). Meanwhile, most professionals' treatment goals focused on impairment and activity (Rosewilliam, Roskell and Pandyan, 2011). Further research is required into the most effective approach for involving both patients and clinicians in the process of goal setting in a fully participative manner. Further qualitative research may inform an appropriate structure for both patients and individuals, the results of which could provide more detailed national guidelines.

The current study did not explore whether tools are currently utilised within goal setting in stroke rehabilitation and if so to identify what these tools are. Literature indicates that tools are not

consistently used (Davis, Davis and Moss, 1992) and when used, the same tool is not consistently used. Common tools used in the goal setting process within stroke rehabilitation such as the Nottingham Extended Activities of Daily Living (EADL, Nouri and Lincoln, 1987) and the Barthel Index (Mahoney, 1965) lack empirical support in their effectiveness within the goal setting process within stroke rehabilitation. Further research is required to identify effective tools in setting collaborative interdisciplinary goals within stroke rehabilitation. This could inform future guidelines, increasing specificity in the recommendations for an effective goal setting process.

The current study does not seek to provide the evidence to support the suggestion of Parry (2004), Brown et al (1995) and Delbanco (1992) that the time pressures may be a factor limiting compliance to goal setting. However, evidence is inconclusive whether the demands on staff time is in developing relationships with the patient and family (Brown et al, 1995; Delbanco, 1992) in order to facilitate the goal setting process or in taking time to attend a meeting to set goals (Parry, 2004). Further quantitative evidence is required to identify time demands in different stages of the goal setting process, however, this may be challenging to extract time in developing relationships from other therapeutic tasks.

5.3.2.7 Frequency of therapy

A dose-response to therapy is clear (Kwakkel et al, 2004) and has the potential to reduce length of stay in hospital after stroke (Slade, Tennant and Chamberlain, 2002). However, numerous studies have compared enhanced therapy to normal practice, with the amount of time in enhanced therapy varying (Sage, Snell and Lambon-Ralph, 2010; Feys et al, 1998; Haines et al, 2011; Slade, Tennant and Chamberlain, 2002; Lincoln, Parry, Vass, 1999; Sivenius et al, 1985), limiting conclusions regarding optimal amount of therapy for improving functional outcomes for patients after stroke. Several national guidelines advocate a high intensity of therapy, specifying a minimum

of 45 minutes of each required therapy per day (Accelerated Stroke Measures, 2010; BASP, 2010; NICE, 2010). However, the choice of 45 minutes as the recommended minimum amount of therapy appears to be pragmatic rather than based on robust empirical evidence. Specifically, the NICE (2010) and RCP (2008) recommendation for 45 minutes of therapy per day is based on studies (Partridge et al, 2000; Slade et al, 2002) and meta-analysis which do not conclude a specific amount of time as optimal (Kwakkel et al, 1999; Langhorne, Wagenaar and Partridge, 1996). In a meta-analysis of 20 studies Kwakkel et al (1999) concluded that an enhanced amount therapy of more than 16 additional hours over the course of rehabilitation was beneficial. However, an optimal additional amount was not specified. The conclusion that 16 additional hours of therapy is beneficial is the result of the cumulative meta-analysis of the 20 included studies indicating that an additional 16 hours of additional therapy time has a statistically significant improvement on functional ability. A further systematic review of seven RCTs by Langhorne et al (1996) concluded that more intensive physiotherapy is associated with an enhanced rate of recovery, again not specifically advocating optimal therapy dosage. Slade et al (2002) did identify a specific amount of therapy time associated with increased motor recovery of one hour 15 minutes per day, five days per week. None of these studies identified 45 minutes as the optimal amount of therapy required for maximum recovery after stroke.

The RCP (2008) recommendation of 45 minutes of each required therapy per day is also informed by an RCT by Partridge et al (2000). As with the other studies, Partridge et al (2000) did not identify a specific optimal amount of therapy and also concluded that enhanced therapy was not beneficial to all stroke patients. Confounding factors including age of the patient, communication difficulties, spatial impairments and mood disorders resulted in little progress with the enhanced amount of therapy. The finding from this study does not support a universal recommendation for all stroke patients and further research is required to explore the impact of confounding factors in isolation

on recovery is required.

Despite NICE guidance of '*45 minutes of each required therapy*' relating to Occupational Therapy, Physiotherapy and Speech and Language Therapy, the meta-analysis by Kwakkel et al (1999), used as the foundation for this recommendation, showed a difference in amount of enhanced time for each discipline. On average, the intensive rehabilitation groups in these RCTs received 48 minutes of physical therapy and 23 minutes of occupational therapy per day, with a difference in the types of interventions. Additionally, no studies of speech and language therapy were included. More research is therefore needed to explore the optimal dose of therapy and whether this differs for different impairments, professions and types of interventions.

Despite intensity of therapy being positively correlated with rate of recovery post stroke (Langhorne et al, 1996), the frequency and intensity with which patients currently receive therapies has been found to be insufficient to achieve maximum recovery (Teasell et al, 2000). The amount of therapy a patient receives can be thought of in terms of intensity, frequency or duration (Pomeroy, 2011). The recommendation for a minimum of 45 minutes of therapy addresses duration of the individual treatment session. However, it may be more appropriate to aim to address intensity of therapy by increasing the number of repetitions of each exercise rather than the duration of the therapy session. Evidence from the literature on motor relearning indicates that a task needs to be repetitive (Langhorne et al, 2009; Van Peppen, 2004) with experimental studies with animals suggesting that 300 to 400 repetitions of a task is required to learn a new motor skill (Pomeroy, 2011). Further research exploring the minimum number of times a motor activity needs to be repeated with stroke patients to achieve motor learning would inform future guidelines addressing the amount of therapy patients require.

Not all stroke rehabilitation patients are able to participate in 45 minutes for each required therapy per day. In a randomised control study of enhanced physiotherapy for the upper limb Lincoln, Parry and Vass (1999) found that about 50% of patients were unable to complete the enhanced therapy. These findings suggest that a patient's ability to tolerate intensity of therapy is variable and that it therefore may be most appropriate to structure rehabilitation environments to enable individual patients to engage in as much therapeutic activity as possible. Interestingly, patients were only considered eligible for Lincoln et al's (1999) study if the person referring to the physiotherapy department considered the patient able to tolerate 30 minutes of therapy. By excluding patients who were not able to tolerate 30 minutes of treatment, those included in the study were more likely to exclude more severe stroke patients. The conclusion that 50% of patients are unable to tolerate enhanced therapy levels may therefore be conservative. It is also important to consider Lincoln et al (1999) utilised one treatment approach, Bobath, which may not be suitable for all stroke patients. This may have impacted on the ability of the patient's participation in the study to complete the additional 30 minutes of therapy per day. More research would be beneficial to identify perceived barriers to participating in enhanced levels of therapy, both from a patient's perspective and healthcare professionals. This could then inform the development of interventions to facilitate all patients to be able to access enhanced levels of therapy.

Within the current study only one team provided their patients with 45 minutes of each required therapy for all of their patients. One further team achieved this intensity of treatment for 80% of patients then there is a sharp decline in compliance to this standard to 30% for one team and 0% for the remaining six teams. However, staffing levels were not found to positively impact therapy intensity. A finding echoing that of Putman et al (2009), DeWit et al (2007), Putman et al (2006), DeWit et al (2006) and DeWit et al (2005). This suggests that staffing levels may not be the sole factor in delivering optimal intensity of therapy and additional processes may be impacting.

5.3.2.8 Differences in Compliance to Stroke Rehabilitation Standards between Primary and District Stroke Centres

This study identified differences in compliance between Primary Stroke Centres (PSC) and District Stroke Centres (DSC) for two standards; '*assessment of impairments within one week*' and '*45 minutes of each required therapy per day*'. Currently three regions within England operate a system of a limited number of centres offering specialist acute stroke services, with patients being repatriated to their local district stroke centre for rehabilitation. Additionally this system is utilised in cardiac, vascular and trauma services nationally. To the author's knowledge this is the first study to explore differences in rehabilitation between different types of specialist stroke care. Disparities in delivering services in accordance to national guidelines may have implications for other services utilising this model of care. To ratify the finding of disparities between specialist and district stroke services and increase the external validity of the conclusion, other stroke rehabilitation services with a similar centralised model of care should conduct the same audit. Further research is also required within other aetiologies which also operate centralised services such as vascular and cardiac, to explore whether disparities exist within service delivery between specialist and district centres. Where disparities exist, commissioners should consider ongoing monitoring of service compliance to agreed standards through data collection with financial incentives for an agreed level of compliance.

In the current study primary stroke centres delivered greater compliance to the standards to '*carry out assessments within the one week*', and '*45 minutes of each therapy per day*' in dating that the *quality of stroke rehabilitation was greater in the PSc and DSC*. This could be the result of numerous factors such as the greater funding to primary centres to provide the infrastructure to deliver the hyper-acute services, which lead to better staffed, organised and/ or resourced care that also benefits the acute rehabilitation phase of the pathway. Alternatively greater scrutiny of

the service delivery while establishing a new service, more effective leadership and differing attitudes and working practices, may also contribute to the differences reported. This study only identifies a difference and does not seek explanation therefore further research is required to explore the processes used within PSCs which could then inform district stroke centres.

5.3.2.9 Limitations of the Study

A limitation of the current study is the potential of the Hawthorne Effect, whereby those who are being studied alter their performance simply in response to being studied (McCarney, 2007), which is prevalent in self-reporting study designs and has been suggested to occur in research within dementia (McCarney et al, 2007), hand washing (Eckmanns et al, 2006), antibiotic prescribing behaviour (Mangione-Smith et al, 2002) and oral hygiene compliance (Feil et al, 2002). The magnitude of the Hawthorne Effect is difficult to ascertain in this design because its defining features, such as extra attention by researchers and higher levels of clinical surveillance are unquantifiable. This potential for inherent bias in the reported results is also present in nationally collected data within stroke care such as through SINAP and the Sentinel Stroke Audit (RCP).

Whilst all but one hospital-based stroke rehabilitation teams within Greater Manchester were included in the current study, community based teams were not. This was due to the time limitations of the study and the lack of co-ordination between acute and community teams preventing researcher from linking inpatient and community patient records. The recommendations included within the current study covered a time period of up to six months after stroke onset. With the average length of stay in Greater Manchester currently at 21.78 days, according to Secondary Uses Service (SUS) data as submitted by hospitals, delivery of some of the recommendations included in the current study would be the responsibility of community teams, most particularly early supported discharge teams. Future studies exploring compliance to national

recommendations should include all services along the patient pathway, including acute and community commissioned rehabilitation teams.

The method utilised within the current study relied on local clinicians selecting case notes for audit. Each team was instructed to utilise 10 complete, consecutive case notes. However, this method raises the potential for local teams to select case notes using purposive sampling to include cases which they feel are most likely to comply with standards included in the study or to manipulate their responses. This could be avoided by an independent researcher selecting case notes for inclusion. However, this could not occur in the current study do to time limitations of the researcher.

Two of the national documents relating to stroke rehabilitation include standards that are based on consensus opinion rather than robust empirical evidence (Healthcare for London, 2009; NICE, 2010). The remaining documents rely on a limited number of studies to base their recommendations (RCP, 2008). Many features of stroke rehabilitation are complex, with the specific features difficult to specify. Numerous components, which may act both independently and inter-dependently, interplay to influence the outcome of the rehabilitation process. As such identifying a definite evidence base for many features of stroke rehabilitation is challenging. The benefits of MDT meetings are evidenced, however the optimal structure, specific elements of the meeting and frequency requires further phase III trials (Medical Research Council, 2000) to build on the existing phase II trials. No phase II trials exist into optimal timing for assessment, most reliable screening tool in identifying mood disorders or effective model of goal setting to identify functional patient centred goals have been conducted and therefore should be considered in future research.

The data used within the current research was collected across a one month time scale. The data may be affected by this narrow time frame if teams were suffering from staffing difficulties as a result of absence or if numbers of patients were being influenced by seasonal variations. The results of the current study are therefore a snap-shot of current services. For greater validity the patient specific case note audit should be repeated for a longer period of time to take into account acute variations in services.

6. Stakeholder Evaluation of Stroke Rehabilitation Services

6.1 Introduction

Within realism and evaluation the involvement of stakeholders in the research is essential. By actively including stakeholders in the research the findings are more likely to be utilised (Robson, 2011), with evidence from several different literatures (such as those on the diffusion of innovation and the psychology of change) that 'people are more likely to accept, use information and make changes...when they are personally involved in it (Patton, 2008). Stakeholders include anyone who is involved in a service or who is affected by it. For the purpose of this study into stroke rehabilitation stakeholders included patients, staff and commissioners of stroke services. This chapter will identify factors involved in stakeholders satisfaction with services in healthcare, as supported in the literature. Satisfaction of all stakeholder groups will be analysed.

6.2 Method

6.2.1 Objectives

- ✦ To explore staff perceptions of the amount of therapy stroke rehabilitation patients receive
- ✦ Identify patients' satisfaction with information provision
- ✦ Identify how often patients would like to receive therapy
- ✦ Identify limitations to the amount of therapy offered
- ✦ Identify barriers and facilitators to implementation of national quality standards

6.2.2 Research questions:

Staff:

- What are staff members experiences of stroke rehabilitation?
- Are staff able to provide as much therapy as they feel that the patient needs?

Patients:

- Are patients satisfied with stroke rehabilitation services?
- Are patients satisfied with the amount of therapy provided?
- What are patients' experiences of stroke rehabilitation?

Commissioners:

- What are commissioner's priorities for stroke rehabilitation?

6.2.3 Design

In line with the evaluation methodology, stakeholders were involved in the current study along with the use of questionnaires to collect the data, a tool used widely in an evaluation research approach (Robson, 2011). Within the current study stakeholders were identified as patients and staff delivering or receiving stroke rehabilitation services. For the current study patients, commissioners and staff were treated as separate cohorts, utilising the same approach to data collection (questionnaire) but containing different questions; the differences in questions are a reflection of findings from the literature and different research questions.

6.2.3.1 Development of Patient Questionnaire

A postal questionnaire previously designed specifically for evaluating stroke patients' views of current services was used (Pound, Gompertz and Ebrahim, 1994) (appendix I). This questionnaire has been utilised by six previous studies exploring satisfaction with stroke care (Pound et al, 1994; Dijkerman, Wood, Langton Hewer, 1996; Gompertz et al, 1995; Richardson et al, 1996; Dennis et al, 1997; Rudd et al, 1997) and has been examined for test-retest repeatability, internal consistency, convergent and discriminant validity, content, and construct validity and has been found to be valid and reliable (Pound et al, 1999). It includes eight statements and a four point likert scale of agreement rated from 'strongly agree' to 'strongly disagree'. Two patient representative groups were approached within GMCCSN and the NW Stroke Research Network to identify volunteers to trial the established questionnaire. Both groups employ a Patient Involvement Manager whose role is to facilitate patient involvement in service development and research. These bodies were therefore used to ensure the appropriate support was available to participants. A group of eight stroke patients who had received rehabilitation volunteered from the groups and were brought together to trial and discuss the structure and format of the questionnaire. As the original questionnaire was developed in 1994 the group piloted it to establish whether its content was applicable to current stroke services, by completing it and providing their views in a focus group. The pilot group suggested that all patients should receive an aphasia friendly version, regardless of whether they had been diagnosed with a communication disorder. Consequently, the patient questionnaire was adapted by a Speech and Language Therapist to reduce the written content and include pictures or graphical representation to complement the written questions and likert scale responses (appendix J).

6.2.3.2 Recruitment Strategy of Patient Questionnaire

Voluntary patient support groups within Greater Manchester were invited to participate by distributing questionnaires to their members who met the inclusion criteria. This included Stroke Association groups, operating in numerous geographical locations, and local independent groups. Voluntary patient support groups were deliberately approached to recruit participants to reduce the potential for bias in patient responses on the questionnaire which may occur if a member of clinical staff distributed the questionnaires to patients. These groups also had close relationships with the treating NHS stroke rehabilitation teams, either through service level agreements with the service providers or through voluntary processes, enabling them to be aware of the majority of patients who have had a stroke. They also have contact with patients both within the hospital and community settings. Leaders of independent groups were approached directly by the researcher to discuss the project and gain consent to provide questionnaires to their group for distribution. The researcher approached the deputy regional manager for the Stroke Association to gain consent to approach group co-ordinators and Information and Advice Co-ordinators within the geographical localities. All groups approached agreed to participate in the distribution of the questionnaires to their members.

A written introduction to the project and an information sheet regarding data collection (appendix K) were provided in a written format along with copies of the questionnaire to each group leader for distribution. Each group was given the option of paper and/ or electronic versions of the questionnaire. Questionnaires were also distributed through the Patient Involvement Managers at GMCCSN and North West Stroke Research Network who distributed paper and electronic versions to the stroke survivors on their distribution lists. In addition Stroke Association Information and Advice co-ordinators in all the stroke rehabilitation units within Greater Manchester were asked to distribute and return questionnaires for the number of beds at each site. All leaders and co-

ordinators that were provided with questionnaires for distribution were also provided with stamped addressed envelopes to return completed questionnaires to the researcher. All involved in distribution of the patient questionnaires were asked to return completed questionnaires within four weeks of receiving the questionnaires from the researcher. The researcher contacted each person distributing the questionnaires after a two weeks period to offer support in collecting and returning completed questionnaires and to act as a reminder in order to maximise returns. Within Greater Manchester 157 rehabilitation beds were operational at the time of the study.

6.2.3.3 Inclusion Criteria

Participants were recruited if they had accessed either in-patient, out-patient or community stroke rehabilitation services in Greater Manchester within the past six months.

6.2.3.4 Development of Staff Questionnaire

A postal questionnaire designed specifically to establish the views of staff on stroke rehabilitation services was used (Tyson and Turner, 1999). Demographics of the respondent, including profession and grade, were included followed by details of current therapy provision, views on ideal therapy provision and potential changes to services. Questions relating to demographics had multiple choice or open answers and all questions relating to current and ideal therapy provision included multiple choice answers. Questions relating to potential service changes included a four point likert scale. A staff group of 24 professionals working in stroke rehabilitation within Greater Manchester was purposively selected to pilot the questionnaire to establish the appropriateness of the questionnaire (which was developed over 10 years before) for current services. Staff working within NHS stroke rehabilitation services within Greater Manchester were invited to join the group. Each stroke rehabilitation team within Greater Manchester was represented, along with each

profession considered essential to the multidisciplinary team, according to the British Association of Stroke Physicians Service Development and Quality Committee Stroke Service Specification (2005) and the National Clinical Guidelines for Stroke (RCP, 2012); consultant physician, nurse, physiotherapist, occupational therapist and speech and language therapist. The content and wording of the questions, choice of responses and Likert scale were considered by the group who were asked whether the content reflected measures of quality stroke services. Suggestions were fed back to re-phrase one question which was amended before finalising the questionnaire (appendix L) for wider distribution; Staff requested an amendment from 'Do you think you are able to give your patient as much therapy as they need' to 'Do you think you are able to give your patient as much care / therapy as they need to meet their needs' in order to reflect the nursing elements of rehabilitation.

6.2.3.5 Inclusion Criteria:

Participants were recruited if they were currently employed by the NHS, working with either in-patient, out-patient or community stroke rehabilitation patients and working in Greater Manchester.

6.2.3.6 Recruitment Strategy for the Staff Questionnaire

Staff questionnaires were distributed electronically to all members of the GMCCSN stroke rehabilitation group (n = 48) with a request from the researcher to distribute further to their colleagues. An identified lead clinician was approached within each site who was currently participating with GMCCSN in other service improvement projects. Each individual was requested to disseminate the questionnaire to members of their team and encourage completion and return to the researcher. In addition paper copies were distributed to rehabilitation clinicians at GMCCSN

meetings, aiming to include clinicians not on GMCCSN electronic distribution lists. A covering information sheet (appendix M) was attached to each questionnaire which explained the nature of the study and distribution intentions of the results. Once distributed, participants were asked to complete and return the questionnaire either electronically or in paper format via post, within three weeks. After two weeks a reminder was sent electronically to all stroke rehabilitation staff that may be eligible to participate. At the time of the current study, 95 therapists were employed in NHS stroke rehabilitation services within Greater Manchester however no figures exist for nursing and medical positions.

6.2.3.7 Development of Commissioners Questionnaire

During the literature review for this thesis no previous questionnaire to address commissioners' views and priorities of stroke rehabilitation services were identified, therefore the researcher designed a questionnaire for the purpose (appendix N). The questionnaire was piloted with two commissioners with specific responsibility for stroke services. No suggestions for change were received during the pilot.

6.2.3.8 Inclusion Criteria:

Commissioner's were recruited if they had commissioning responsibilities for stroke services and were working within Greater Manchester

6.2.3.9. Recruitment Strategy Commissioners Questionnaire

A covering sheet (appendix O) was provided with each questionnaire detailing the nature of the study and distribution intention of the results. Both the questionnaire and covering letter were distributed electronically to all stroke commissioners within Greater Manchester (n= 11) with a

request to complete the questionnaire either electronically or in a paper format via post within three weeks. Two weeks after distribution a reminder was sent electronically to all potential participants.

Data was collected between July 2010 and September 2010.

6.2.4 Statistical Analysis

Statistical analysis was performed using SPSS v.17.0. Descriptive analysis was used to explore patient satisfaction, type of treatment received, whether staff felt they offered enough therapy, limitations to the amount of therapy patients receive and potential changes to service delivery. A Kruskal Wallis Test was used to compare reported satisfaction with patient's age, severity of stroke and time since onset of the stroke. To establish whether patients agreed with the statements of satisfaction within the questionnaire the mean score for each item was calculated. A mean score of 3 or more indicated that patients agreed with the statement and therefore were satisfied with that element of care. A mean score of less than 3 indicated dissatisfaction.

Respondents were asked their opinions about the amount of therapy that patients currently receive and the amount that patients should receive. Due to the small sample size respondents were collapsed into two categories; allied health professionals and nurses. Response categories were also collapsed into 'usually / always' and 'never / occasionally'. The Kruskal Wallis test was used to compare responses from staff of different grades and chi squared test for independence was used compare the responses of different professions. Descriptive statistics were utilised to analyse how much therapy per day staff report patients current do receive and should receive.

Descriptive analysis was used to analyse commissioner's responses.

6.3 Results of stakeholder questionnaires

6.3.1 Patient Questionnaires

One hundred and forty six stroke rehabilitation patients returned completed questionnaires.

Respondents had a mean age of 67.06 years (range 21 – 93 years), most had an onset of stroke symptoms within the past four months (31.2%) and had a right sided weakness (55.5%). Patients agreed that they were satisfied with two out of the ten statements; being treated with dignity and that the doctors did all they could. All other statements revealed patients were dissatisfied with particular elements of care (Table 16).

Table 16: Mean scores for patient satisfaction statements

Statement	Total number of responses	Numbers of responses				Mean Score
		Strongly agree	Agree	Disagree	Strongly disagree	
I was treated with dignity	135	38	72	15	10	3.02 *
The doctors did all they could	132	33	75	18	6	3.02 *
I am satisfied with my recovery	129	17	69	29	14	2.69
I have received the information I wanted	126	13	74	24	15	2.67
All my questions were answered	128	17	67	27	17	2.66
I am happy with the therapy I received	97	12	49	23	13	2.62
I didn't wait too long for therapy after I left hospital	59	7	25	15	12	2.54
My goals were discussed with me	123	13	55	36	19	2.5
I have received enough therapy	120	14	49	37	20	2.48
I received written goals	117	10	25	55	27	2.15

* = mean score > 3.00 / satisfied

The impact of age, time since stroke and severity of stroke on patient satisfaction was investigated. Data was condensed into two categories, dissatisfied (responses 1 and 2 on the questionnaire) and satisfied (response 3 and 4 on the questionnaire) and a Kruskal Wallis utilised. This non-parametric alternative to the one way ANOVA allows between group analysis of variance between three or more groups, which each category contains. This analysis identified a statistically significant difference in time since onset and four of the ten statements of satisfaction along with a

statistically significant difference in patient's age and three statements of satisfaction (Table 17).

Table 17: Kruskal Wallis Test for impact of age, time since onset of stroke and severity of stroke patient satisfaction

Statement	P value		
	Age	Time Since Stroke	Severity of Stroke
I was treated with dignity	0.027*	0.303	0.108
The doctors did all they could	0.008*	0.041*	0.637
I am satisfied with my recovery	0.322	0.002*	0.416
I have received the information I wanted	0.017*	0.133	0.432
All my questions were answered	0.136	0.320	0.238
I am happy with the therapy I received	0.064	0.039*	0.965
I had to wait too long for therapy once I left hospital	0.579	0.994	0.553
My goals were discussed with me	0.691	0.189	0.175
I have received enough therapy	0.309	0.146	0.881
I received written goals	0.128	0.000*	0.316

* p < 0.05

Mean ranks were used to identify which categories were the most satisfied with the elements of care. Consistently patients over 80 years, the oldest group within the current study, were the most

satisfied with care. Patients who had the most recent onset of symptoms were the most satisfied with their recovery and felt that doctors did all they could within their care. Patients with an onset of symptoms between 6 and 12 months were the most satisfied with receiving written goals and with the type of therapy they had received.

Most patients received one to one treatment with a therapist (n = 78) (70.9%), with less being treated in a group setting (n = 7) (6.4%) or by an assistant (n = 6) (5.5%) (Table 18).

Table 18: Percentage responses of type of treatment received as reported by patients

	frequency of responses	Percent
1:1 with therapist	78	70.9
1:1 with assistant	21	19.1
Instructions to do alone	19	17.3
Group with therapist	7	6.4
Group with assistant	6	5.5

6.3.2 Staff Questionnaires

44 staff returned completed questionnaires, six nurses and 38 allied health professionals had a mean experience of 8 years (0 – 21years) and ranged from grade 2 to 8.

6.3.2.1 Amount of therapy

The majority (70.5%) of staff (n= 31) reported patients 'usually' or 'always' received enough therapy time whilst they are in rehabilitation compared to 29.5% (n=13) who reported patient's , 'never' or 'occasionally' received enough therapy. Chi squared tests for independence indicated no significant association between profession and the perceived sufficiency of the therapy received (p =0.67). A Kruskal Wallis test identified no relationship between grade of staff and whether staff felt

patient's received enough therapy ($p= 0.418$).

Descriptive statistics were utilised to analyse how many days per week staff report patients currently receive treatment if it is required and how many days' staff feel it should be available. The majority of staff (78.4%) ($n=29$) responded that patients should receive therapy 6 or 7 days per week. However, the majority (56.8%) ($n=25$) of staff report therapy is currently available 4 or 5 days per week, with only 13.6% ($n=6$) reporting therapy is currently available 6 or 7 days per week.

Kruskal Wallis did not indicate a significant association between grade and the amount of therapy staff report patients currently receive in rehabilitation ($p =0.484$). Chi squared test for independence indicated a significant association between profession and the number of days per week therapy is available ($p = 0.001$), suggesting a difference in the amount of therapy each profession is able to offer. Physiotherapist, occupational therapists and assistants most frequently reported that the majority of patients received therapy four or five days a week. However, speech and language therapists reported that most patients only received therapy one to three days per week, suggesting that speech and language therapy provision is less frequent than physiotherapy or Occupational Therapy. Nurses exclusively reported that patients received therapy six days or more per week. Descriptive analysis was used to explore responses from individual professions (Table 19).

Table 19: Descriptive analysis of number of days per week therapy is available as reported by staff

Profession	Frequency of responses “number of days per week therapy is available “		
	1 – 3 days	4 – 5 days	6 – 7 days
Doctor	0	1	1
Physiotherapist	9	13	0
Occupational Therapist	1	6	2
Speech Therapist	2	0	0
Assistant	1	4	0
Nurse	0	0	3
Co-ordinator	0	1	0

The majority (66.7%) (n= 14) of staff report 45 mins to 3 hours of therapy should be available per day if it is required, compared to 69.8% (n= 30) of staff reporting that patients currently receive less than 45 minutes of therapy per day.

A Kruskal Wallis test did not identify any relationship between staff grade and the number of days per week therapy was available ($p = 0.745$). Chi squared test for independence indicated a significant association between profession and the number of days per week therapy is available ($p = 0.001$). The majority (n = 27) (90%) of allied health professionals reported that patient's received less than 45 minutes therapy per day, compared to nursing staff, the majority of which reported that patient's received more than three hours of therapy per day (n = 2) (60%). Descriptive analysis was used to explore responses from individual professions (Table 20).

Table 20: Descriptive analysis of how much therapy patients receive per day as reported by each profession

Profession	Frequency of responses “How much therapy do patients receive per day? “		
	less than 45 minutes	45 mins – 3 hours	More than 3 hours
Doctor	1	0	0
Physiotherapist	14	8	0
Occupational Therapist	6	3	0
Speech Therapist	2	0	0
Assistant	5	0	0
Nurse	1	0	2
Co-ordinator	1	0	0

Qualitative data was collected using the open-ended question “What are the limitations to the amount of therapy patients currently receive?” Results from this question were analysed using content analysis of the qualitative data. Majority (n = 33) (63.6%) of staff reported staffing levels limited the amount of therapy patients receive, followed by 15.2% reporting case-load demands, medical issues and time pressures (Table 21).

Table 21: Limitations to the amount of therapy patients currently receive as reported by staff

Limitation	frequency of responses (n = 33)	Percentage of responses
Staffing levels	21	63.6
Case load demands	5	15.2
Medical issues	5	15.2
Time pressures	5	15.2
Non clinical demands	4	12.1
Patients tolerance to therapy	3	9.1
Patient motivation	2	6.1
Staff not working weekends	2	6.1
Lack of suitable accommodation	2	6.1
Lack of resources	1	3
Mood of patient	1	3
Push to discharge too early	1	3
Increase in targets	1	3
Level of patient need	1	2.9

Chi squared testing to explore the relationship between profession and limitations to the amount of therapy were carried out. The minimum expected cell frequency was violated when all responses were included individually in non-parametric analysis, as 14 different reasons for limitations of therapy were received. Responses were grouped into emerging themes; 'availability of staff', 'presentation of patient' and 'organisational challenges' (Table 22).

Table 22 Descriptive analysis of emerging themes of limitations to the amount of therapy patients currently receive

Limitation	Frequency (n= 33) (%)
Availability of staff	31 (93.9)
Presentation of patient	9 (27.3)
Organisational challenges	4 (8.7)

Kruskal Wallis Test indicated no significant association between grade and availability of staff ($p = 0.393$), presentation of the patient ($p = 0.624$) and organisational challenges ($p = 0.116$). Chi squared test for independence indicated no significant association between profession and presentation of the patient ($p = 0.808$) and organisational challenges ($p = 0.506$). However, a significant association between profession and availability of staff was found ($p = 0.041$). Allied Health professionals ($n = 30$) cited staffing levels as a limiting factor to the amount of therapy patient's currently receive (mean rank = 17.45) more than nurses ($n=3$) (mean rank = 12.50).

To explore alternative service delivery to maximise the amount of therapy available, staff were asked their opinions regarding four therapy approaches. The majority of staff report that a 6 day (44.4%) ($n = 16$), group treatment (57.9%) ($n = 22$) and rehabilitation assistants delivering treatment (76.9%) ($n = 30$) were a 'great idea'. Only 11.1% ($n = 4$) of staff reported that a 7 day service should 'never' be pursued (Table 23).

Table 23: Staff opinions on alternatives to current service delivery models

Suggested service delivery	Per cent of responses (%)			
	Great idea	Ok idea	Not keen	Never
6 day service	44.4 (N= 16)	41.7 (N=15)	13.9 (N=5)	0
7 day service	27.8 (N= 10)	33.3 (N= 12)	27.8 (N= 10)	11.1 (N= 4)
Group treatment	57.9 (N= 22)	39.5 (N= 15)	2.6 (N= 1)	0
Treatment from rehabilitation assistant	76.9 (N= 30)	23.1 (N= 9)	0	0

Chi squared test for independence indicated no significant association between profession on responses to changes to service delivery ($p = 0.321 - 0.849$) (Table 24). A Kruskal Wallis test indicated that no association between grade and responses to suggested changes to service delivery ($p = 0.069 - 0.468$) (Table 24).

Table 24: Statistical analysis of profession and grade and suggested changes to service delivery models

	P value	
	Profession (chi squared)	Grade (Kruskal Wallis)
6 day service	0.779	0.075
7 day service	0.321	0.069
Group treatment	0.849	0.468
Treatment from rehabilitation assistant	0.407	0.356

6.3.2.2 Limitations to recovery

The most frequent response staff provided for limitations to recovery is the severity of stroke (n = 15) (41.7%). This is followed by patient motivation (n = 10) (27.8%), cognition (n = 7) (19.4%) and frequency of therapeutic input (n = 7) (19.4%) (Table 25).

Table 25: Limitations to recovery as reported by staff

Limitation	Frequency of responses (n = 33) (%)
Severity of stroke	15 (41.7)
Patient motivation	10 (27.8)
Cognition	7 (19.4)
Frequency of therapy	7 (19.4)
Pre-morbid conditions	5 (13.9)
Social issues	4 (11.1)
Patient compliance	4 (11.1)
Depression	4 (11.1)
Bed pressures	3 (8.3)
Not medically stable	3 (8.3)
Staffing levels	2 (5.6)
Lack of community follow up	2 (5.6)
Poor communication amongst the MDT	1 (2.8)
Delays in equipment	1 (2.8)
Delays in test results	1 (2.8)
Residual difficulties	1 (2.8)

Chi squared testing to explore the relationship between profession and limitations to recovery were carried out. The minimum expected cell frequency was violated when all responses were included individually in non-parametric analysis, as 16 different reasons for limitations to recovery were received. Responses were grouped into four emerging themes; 'patients medical presentation', 'delays in processes within the service', 'organisational barriers' and 'patient mood disorder' (Table 26).

Table 26: Descriptive analysis of limitations to recovery as reported by staff

Limitation Theme	Frequency of responses (n = 33) (%)
Patient's medical presentation	24 (66.7)
Patient mood disorder	14 (30.4)
Organisational barriers	12 (26.1)
Delays in processes within the service	6 (16.7)

Chi squared test for independence indicated no significant association between profession ($p = 0.292 - 0.957$) on responses to limitations to recovery (Table 27). A Kruskal Wallis test indicated no association between grade and limitation to recovery ($p = 0.318 - 0.722$) (Table 27).

Table 27: Statistical analysis of association between grade of staff and profession and reported factors limiting recovery

Limitation Theme	P value	
	Profession (Chi squared)	Grade (Kruskal Wallis)
Medical	0.549	0.722
Delays in processes	0.946	0.393
Organisational	0.292	0.318
Patient mood disorder	0.957	0.412

6.3.2.3 Reasons for delays in discharge from hospital

Waiting for social care (n = 27) (71.1%) was the most frequently cited reason by staff for delays in discharge, followed by staff citing difficulties with family (n = 8) (21.1%) second (Table 28). Chi squared test for independence was unable to determine the relationship between delays to discharge and profession due to a violation in the assumption concerning the minimum expected cell frequency.

Table 28: Reasons for delays in discharge from hospital as reported by staff

Reason for delay	Frequency of responses (n = 33) (%)
Delays in social care involvement and organisation of care services	27 (71.1)
Staff reported delays with family agreeing to discharge plan	8 (21.1)
Medical management	6 (15.8)
Waiting for equipment to be delivered	4 (10.5)
Poor communication between MDT	3 (7.9)
Waiting for nursing home assessment and securing place	2 (5.3)
Patients health	1 (2.6)
Safe guarding issues	1 (2.6)
Funding issues for securing social care following discharge	1 (2.6)
Patient not meeting rehabilitation goals set by MDT	1 (2.6)
Staffing levels low	1 (2.6)
Liaison with rehabilitation teams out of area	1 (2.6)
Accommodation not suitable in the community	1 (2.6)
Patient choice	1 (2.6)
Infection outbreak within the inpatient ward	1 (2.6)
Waiting list to access stroke rehabilitation services in community	1 (2.6)

The minimum expected cell frequency was violated when all responses were included individually in non-parametric analysis, as 16 different reasons for limitations to recovery were received.

Responses were grouped into three emerging themes; 'medical', 'arranging community support' and 'organisational' (Table 29).

Table 29: Descriptive analysis of emerging themes of delays in discharge as reported by staff

Delays in Discharge Theme	Frequency of responses (n = 33) (%)
Arranging community support	31 (70.5)
Medical	9 (20.9)
Organisational	5 (11.4)

Chi squared test for independence indicated no significant association between profession ($p = 0.187 - 0.857$) on responses to delays in discharge (Table 30). A Kruskal Wallis test also did not identify an association between grade and reasons for delays in discharge (χ^2 (n = 34), $p = 0.580 - 0.751$) (Table 30).

Table 30: Statistical analysis of reported delays in discharge and profession and grade

Delays in Discharge Theme	P value	
	Profession (chi squared)	Grade (Kruskal Wallis)
Medical	0.745	0.580
Arranging community support	0.857	0.751
Organisational	0.187	0.639

6.3.3 Commissioner's Questionnaire

Six completed questionnaires were returned by commissioners (n=8) providing a response rate of 75%. All six commissioners were employed by Primary Care Trusts, with responsibility of arranging contracts with the provider services to deliver acute stroke rehabilitation services. Responses to the priorities when commissioning stroke rehabilitation services were grouped into emerging themes; 'aims for the development of stroke rehabilitation services, 'outcomes for the

development of stroke rehabilitation services', 'services to be introduced', 'equity of access to stroke rehabilitation services' and 'other stroke priorities, non-rehabilitation' (Table 31).

Table 31: Emerging themes of priorities of commissioners when commissioning a stroke service

Response	Theme
Ensure performance consistently meets local standards	Aims for the development of stroke rehabilitation services
Development of integrated stroke pathways	
Efficiency – increase amount of rehab without increasing costs	
Increase life expectancy	Outcomes for the development of stroke rehabilitation services
Reduce length of stay	
Care closer to home	
High quality indicators for health and social outcomes	
Provision of primary care rehab to facilitate earlier discharge	
Joint commissioning with local authority	
Seamless transition into community	
Integrated care system	Services to be introduced
7 day service	
Increase provision of psychology services	Equity of access to stroke rehabilitation services
Equity	
Quality access to effective intermediate care	Other stroke priorities, non-rehabilitation
Finalisation of TIA service model	
Development of effective AF monitoring services	

The majority of responses for priorities were 'outcomes for the development of stroke rehabilitation services' (n = 17) (47.1%) (Table 32).

Table 32: Descriptive analysis of themes of priorities for commissioners when commissioning a stroke service

Theme	frequency of responses (n = 17) (%)
Development of services - outcome	8 (47.1)
Development of services - aims	3 (17.6)
Development of services – services to be introduced	2 (11.8)
Equity of access to services	2 (11.8)
Other stroke priorities, non-rehabilitation	2 (11.8)

Respondents were asked what changes they would like to see to improve stroke rehabilitation services. Responses were grouped into emerging themes; 'care in residential facilities', 'access to services after discharge', 'equity of services', 'patient centred care', 'integrated working' and 'outcome Monitoring' (Table 33).

Table 33: Emerging themes of improvements commissioners would like in stroke services

Response	Theme
Care home rehab – staff skill improvement	Care in residential facilities
Ensuring access to rehab for all especially severe stroke	
Better care home NHS coordination	
Equitable service	Access to services after discharge
Ensuring access to rehabilitation for all especially severe stroke	
Better care home NHS coordination	
Ensure financial contracts developed. Allow savings from reduced LoS to be invested into ESD and community rehab	
Increase access to generic services to provide exit strategy from rehab	
Effective communication between agencies and wider access to services outside 9 – 5 mon- fri	
Same standard of care regardless of site providing	
More access to groups and independent exercise	
Equitable service	
Ensuring access to rehabilitation for all especially severe stroke	
Comprehensive multi-agency partnership working	Equity of services
Increase access to generic services to provide exit strategy from rehab	
Effective communication between agencies and wider access to services outside 9 – 5 mon- fri	
Same standard of care regardless of site providing	
More access to groups and independent exercise	
Increase service user satisfaction	
Increase QoL for stroke survivors	Patient centred care
Patient carer views considered	
Rehab in most appropriate setting	
Better care home NHS coordination	Integrated working
Better clarity of pathways	
Increase access to generic services to provide exit strategy from rehab	
Effective communication between agencies and wider access to services outside 9 – 5 mon- fri	
Same standard of care regardless of site providing	
Increase performance monitoring to ensure best standards met and maintained	

The majority of responses for changes commissioners would like to see were 'access to services after discharge' (n = 8) (28.6%) (Table 34).

Table 34: Descriptive analysis of emerging themes for changes commissioners would like to stroke services

Theme	frequency of responses (n = 28) (%)
Access to services after discharge	8 (28.6)
Equity of services	7 (25.0)
Integrated working	6 (21.4)
Care in residential facilities	3 (10.7)
Patient centred care	3 (10.7)
Outcome Monitoring	1 (3.6)

Commissioners were asked whether they felt stroke rehabilitation services were adequately co-ordinated. The majority of respondents (n = 4) (66.7%) reported that services were not adequately co-ordinated.

Commissioners were asked how they evaluate the effectiveness of stroke rehabilitation services within their local area. Five different responses were received, with one respondent not providing a response to this question; multi agency stroke strategy group, contract negotiation, stroke team provides reports annually, review of local service provision and monitor Vital Signs and length of stay data.

6.4 Discussion

6.4.1 Background

The objectives of this study included identifying the opinions of multiple stakeholders within stroke rehabilitation services. This included patients, commissioners and staff. This was achieved and in doing so is the first time the opinions of commissioners for stroke rehabilitation were documented. Responses were characterised by diversity and lack of unity. Seventeen different responses were provided for commissioner's priorities when commissioning services, 28 different changes to stroke rehabilitation services commissioners would like to see and 5 different methods used to monitor the effectiveness of stroke services.

It is also the first time that staff and patient's preferences for the amount of therapy received during stroke rehabilitation were explored. Staff and patients both felt that the amount of therapy available was not satisfactory, with staff reporting that therapy should be available more days per week than it currently is and with more therapy time per day. A difference in the amount of therapy different professions are able to offer was identified, suggestive of an inequity in allied health services. Poor staffing levels were cited as the reason for lack of therapy by most staff. Most patients currently receive one to one treatment with a therapist but staff were supportive of changes to service delivery to offer more group treatment and therapy assistants delivering treatment. These results have led to a successful project implementing more group working and utilising therapy assistants within stroke rehabilitation services, resulting in a three fold increase in the amount of therapy patients receive.

As with previous studies, patients within the current study were dissatisfied with numerous elements of stroke rehabilitation services, including information provision and the amount of

therapy received. As previous studies suggested, older age groups were more satisfied with the care they received. However, this study is the first to identify that patient's with more recent onset of symptoms were also more likely to be satisfied with stroke services than those who had onset of symptoms more than 12 months. This finding has led to the construction of implementation of a patient information book, standardising information provision. This has also resulted in the provision of information to patients upon discharge within a care plan being monitored at a local level through an ongoing electronic audit programme.

6.4.2 Being treated with dignity

In line with previous studies (Pound, Gompertz and Ebrahim, 1994; Tyson and Turner, 1999) patients within the current study were satisfied that they were treated with dignity. This was the statement with the highest level of satisfaction. However, the current study identified that 18.5% (n= 25) of respondents did not feel they were treated with dignity. This is a similar finding to that of Pound et al (1999) who found that 10% of their respondents did not feel they were treated with dignity. Alarming, this figure has increased during the 13 years interlude between these studies. This finding indicates that there remains a proportion of patients within stroke rehabilitation who are not treated with dignity and this number is increasing.

Previous research has concluded that not being treated with dignity can lead to a negative emotional reaction within the patient including anxiety, anger, humiliation and embarrassment (Griffin-Heslin, 2005; Clark, 2010) which can impact upon motivation and participation with therapy (Reynolds, 1992). In turn this can limit the functional recovery made during rehabilitation. Therefore, despite a limited number of patients not being satisfied with the dignity they felt they were treated with, this could be impacting their recovery from stroke, which should not be acceptable. To not be treated with dignity is a breach of basic human rights (Amnesty

International, 1948; WHO, 1994) and against professional ethical practice (Jacobs, 2001; Shotton and Seedhouse, 1998; International Council of Nursing, 2006; RCN, 2003) and should not feature in modern health care.

Dignity is a subjective concept (Becker, 2001; Moody, 1998; Pullam, 1996) and different people may experience dignity in different ways (Clark, 2010; Bolton, 2007; Fenton and Mitchel, 2002). Within the current study the oldest group of patients, over 80 years, were the most satisfied with the extent they were treated with dignity. This is in agreement with previous studies which found that younger patients are less satisfied with the dignity they felt they were treated with (Chochinov et al, 2002; Kathol et al, 1990; Noyes et al, 1990). This may be due to older patients generally expressing higher levels of satisfaction (Fakhoury et al, 1997; Lecouturier et al, 1999; Jenkinson et al, 2002), potentially due to low expectations and reluctance to express dissatisfaction (Mangset et al, 2008; Owens and Batchelor, 1996). This finding that older patients are more satisfied with the level of dignity they experienced may also be due to recent reports in the press highlighting lack of dignity in the care of the elderly, along with national reports such as the Healthcare Commission's Caring for Dignity (2007). This emphasis may subconsciously influence health care staff to be more aware of how they are treating older patients.

Interestingly, the severity of stroke did not impact on patient satisfaction with being treated with dignity, which is contrary to previous studies identifying an association between poor subjective health and decreased satisfaction (Asplund, 2009). Elements of dignity have been suggested to include a deterioration in appearance (Chochinov et al, 2002), pain (Chochinov et al, 2002), a sense of being a burden to others (Chochinov et al, 2002) and a persons ability to exercise competence (Seedhouse and Shotton, 1998). All of these features could be associated with a more severe stroke and therefore could be expected to feel less dignity in their care. However, the more severe

stroke would impact the patient's ability to participate in the current study. Whilst patients with severe strokes were not excluded from the current study they are more likely would require assistance to complete the study questionnaire. This may bias the response received as the person facilitating completion of the questionnaire may not be present during personal care or witness individual interactions throughout the patient's care.

The current study did not explore specific features of treatment possibly contributing to the patient's feeling of being treated with dignity. If a patient is not seen as having individual value but being part of a group, if their privacy is not respected or if the patient is humiliated can result in a loss of feeling of being treated with dignity. As individual features of dignified care were not explored in the current study no conclusions can be drawn regarding the causes of dissatisfaction in this area therefore specific recommendations for service improvement can not be identified. However, these possible causes of a loss of dignity are strong causes for concern regarding how stroke rehabilitation patients are treated.

The opinions of staff regarding the delivery of dignified care were not sought in the current study. In previous research nursing staff have reported that a lack of staffing can be a barrier to delivering dignified care (Bagheri et al, 2012). The association between staffing levels and patient perception being treated with dignity was not explored within the current study. However, staffing levels were highlighted by staff within the current study as a barrier to delivering intensive levels of treatment therefore may also be a factor in delivering dignified care. Previous research has also identified that the levels of dignity that healthcare staff themselves feel they receive whilst at work can in turn impact upon the level of care they give to patients (Lawless, 2010). The current study did not explore whether staff felt they were treated with dignity therefore conclusions can not be drawn regarding the potential impact of how staff are treated and their subsequent treatment towards

patients.

6.4.3 Information Provision

As with previous studies (Pound et al, 1995; Tyson and Turner, 1999; Rodgers et al, 2001; O'Mahoney et al, 1997) patients within the current study do not feel satisfied with the amount of information they received during their rehabilitation and do not feel their questions were answered. The current study did not explore different methods of information delivery and patient's satisfaction with the method they received, which would be an area for future research. The current study also did not explore whether patients within this cohort received personalised or general information. Previous studies have identified that personalised information increases patient satisfaction therefore whether the information patients received within the current study may impact upon satisfaction (Hoffman et al, 2007). Currently the information provision after stroke is not standardised therefore it is likely that patients within the current study received a variety of methods and degrees of personalisation. The content is also likely to vary, which previous studies have shown impacts upon patient satisfaction (Tooth and Hoffman, 2004; Jones et al, 2008; Tyson and Turner, 1994; Maclean, 2000). Topics patients prefer to be included within the information provision include causes of illness, individual progress, risk factors, secondary prevention and medication (Maclean, 2000; Tooth and Hoffman, 2008; Jones et al, 2008). However the current study did not identify the content of the information patients received therefore can not draw any conclusions regarding content and patient satisfaction with information provision.

One component of information provision is discussion of goals the stroke rehabilitation team are working towards with the patient and providing written information about the goals (Jones et al, 2008). Goal setting is considered to be a central component to the stroke rehabilitation process

(Davis et al, 1992; Partridge and Edwards, 1996) and a process that professionals agree is central to the stroke rehabilitation process (Playford et al, 2009). Stroke rehabilitation patients were least satisfied with goal setting within the current study. They felt goals were not discussed with them and they did not receive written copies of the goals the rehabilitation team were working towards.

Factors impacting upon the provision of goal setting information may be the imprecise conclusion in the literature regarding the most effective method of goal setting, including whether the patient should be present when goals are agreed, the appropriate number of goals and time frame for achieving goals set (Playford et al, 2009; Schut and Stam, 1994). However, Levack et al (2006) identified core mechanisms to be utilised during the process of goal setting, regardless of the outcome measure or approach utilised. All professionals involved in stroke rehabilitation should set goals that are specific and difficult for the patient, include a variety of outcome measures, involve the patient in the process and document that the process has occurred. Utilising these mechanisms can be challenging for professionals which may be impacting upon the implementation of the goal setting process. For example, conflict can occur between making goals achievable whilst also being ambitious enough to challenge the patient. Specific, difficult goals are more motivating for the patient (Levack et al, 2006) but if the effectiveness of the stroke rehabilitation service is evaluated on whether the patient achieves their goals, goals are likely to be selected based on being achievable rather than ambitious.

There are also multiple outcome measures available for use in goal setting (Playford et al, 2006; Wade, 1999; Schut and Stam, 1994) including Goal Attainment Scaling, Functional Independence Measure (Turner-Stokes et al, 1999) and Canadian Occupational Performance Measure (Law et al., 1991). This choice of outcome measures available to professionals may result in confusion over which is the most appropriate to use or excessive time demands upon the professional if all are

used. Either of these factors may result in professionals avoiding the process. There is a lack of empirical evidence to support the effectiveness of these measures and some evidence that casts doubt on the validity of the use of ordinal scales, such as the Goal Attainment Scale (Tennant, 2007). Some objective outcome measures such as the Goal Attainment Scale (GAS) have scientific properties (Hurn et al, 2006) but this objective measure does not necessarily translate into goals that are meaningful to the patient (Worrall et al 2010). Objective measures are less likely to capture the secondary benefits that can occur from patients working towards and achieving their goals. Clinicians may recognise this conflict and the benefit of utilising subjective quality of life outcome measures within goal setting, along with objective measures. However, this will result in increased time demands on professionals to facilitate the completion of multiple outcome measures. Professionals may recognise that one outcome measure does not necessarily meet the requirements of the goal setting process and therefore not complete any as they can not dedicate sufficient time to complete the process effectively. The availability of staff to utilise time goal setting is key to the success of the process (Playford et al, 2009) and this study has identified that staffing levels are a constraint within stroke rehabilitation. General time demands on staff due to inadequate staffing levels may be limiting staff availability to effectively goal set during stroke rehabilitation.

At a more fundamental level professionals use a wide range of terminology to describe the components of goal setting (Playford, 2009) and that this caused a barrier amongst the clinical team. This range and lack of consensus regarding the process may contribute to the poor delivery of written goals to the patient.

A disparity in what professionals and patient's regard as a suitable level of discussion of goals may contribute to patient satisfaction with the goal setting process (Playford, 2009). It is recognised

that there is a relationship between patient expectations of their treatment and satisfaction (Williams et al, 1995; Hsieh and Donor Kayle, 1991), therefore if the goals were not discussed in the depth that patient's expected, this will lead to dissatisfaction. A patient-centered approach to rehabilitation encourages patient participation in the discussion of their goals, however including patient's in this discussion requires skill from the health care professionals. The discussion needs to be paced at an appropriate rate to facilitate participation of the patient and any communication impairments need to be accommodated. Levels of involvement of the patient also need to be considered and may vary with time since onset of stroke and the individual patient's ability and preference. Levels of involvement can vary from simply witnessing the discussion to leading it, with varying levels in between (Playford et al, 2009). It is therefore important for the healthcare professionals to explicitly establish the extent to which the patient wishes to be involved prior to starting the goal setting discussion.

Any disparity between the goals patients expect to work towards and those the healthcare professionals agree may result in dissatisfaction. The current study asked patient's satisfaction with their participation in the discussion of the goals. However, it did not explore satisfaction with the goals decided. Patients' responses to the question in the current study may be influenced by whether they were in agreement with the goals discussed and agreed. Patient's sometimes hold unrealistic expectations from rehabilitation and the process of health care professionals re-phrasing patient goals to make them more achievable can be perceived as 'not listening to the patient's wants' (Playford, 2009). Playford et al (2009) suggested that the goals setting process can be made patient centred by sharing control of the conversation with the patient, developing a shared management plan and developing a shared understanding of the problem. However, even with the implementation of this it is possible for the goal to be quite different to what the patient wanted (Levack et al, 2011). This disparity may result in dissatisfaction for the patient.

Patients with a more recent onset of stroke, within the past six months, were most satisfied with the written goals they received. This may be a reflection of the more recent publication of the standard 'patient's to receive negotiated goals within five days of admission' (NICE, 2010). Stroke rehabilitation teams may have become more aware of this standard and amended the timeliness and provision of written goals to the patients, impacting benefiting who had a more recent stroke.

'Patient motivation' was the second most frequent factor reported by staff to account for the limited recovery patients make after stroke. Previous research has identified that effective goal setting within rehabilitation can increase a patients motivation leading to a behaviour change. Therefore more effective goal setting could not only increase patient satisfaction but also impact upon the recovery they achieve.

6.4.4 Amount of Therapy

Patients are on the whole dissatisfied with the amount and type of therapy they receive, which supports previous findings in the literature (Tyson and Turner, 1999; Morris et al, 2007; Pound et al, 1999). This is in contrast to staff who feel that patient's receive enough therapy time. Despite staff reporting that patients receive enough therapy, there is a disparity in the amount and frequency of therapy staff are able to offer and the amount and frequency they feel patient's should receive, indicating that staff do not feel that patients receive the intensity of therapy that is acceptable. Staff feel that patients should receive therapy six or seven days per week, compared to the four or five days per week that they currently receive. Disparity exists between professions and the frequency of therapy that they offer; physiotherapists and occupational therapists offer therapy four or five days a week, compared to one to three days per week offered by speech and language therapists. In contrast, nurses report patients receiving therapy six days per week.

The amount of therapy staff feel that patients should receive was quantified within the current study. Most staff feel that patients should receive 45 minutes to three hours of therapy per day despite currently receiving less than 45 minutes. This response may be influenced by staff awareness of the national recommendation of 45 minutes of each required therapy per day (BASP, 2005; RCP, 2008; Healthcare for London, 2009; NICE, 2010). Again, a disparity exists between the amounts of therapy that different professions feel that patients receive. Nurses report that patients receive more than three hours of therapy per day, with allied health professionals reporting that patients receiving less than 45 minutes. Availability of staff is cited as the factor most impacting upon the amount of therapy that patients receive, including time pressures, non-clinical demands and therapy staff not working weekends.

A limitation of the current study is that the amount of therapy patients actually received, rather than the amount patients and staff felt they received, was not collected. This prevents direct analysis of satisfaction and the amount of therapy patients actually receive. Patients were also not asked how much therapy they would like to receive. Pound et al (1999) identified an optimum amount of therapy patients are satisfied with as 20 minutes per day for two to four weeks, a total of 300 to 560 minutes throughout the course of rehabilitation.

Patients with a more recent onset of stroke, within the past six months, were most satisfied with the type of therapy they received. Most patients receive one to one treatment from therapists, with few currently receiving group treatment or treatment from a therapy assistant. To increase the amount and frequency of therapy patients receive staff were supportive of adjusting clinical practice to include more group therapy and utilise therapy assistants in the delivery of treatment. However, prior to implementing this within service delivery more research is required to explore

the effectiveness of assistants delivering therapy and group therapy in achieving patient outcomes within all areas of stroke rehabilitation. If further research identifies these methods of therapy delivery are effective, barriers which have been identified must be considered to ensure successful implementation. Patients can regard the use of assistants in the delivery of therapy as a cheap alternative to a qualified member of staff (Nancarrow and Mackey, 2005). Additionally, the roles of assistants in rehabilitation lack clarity (Conway and Kearin, 2007) which may result in qualified therapists being reluctant to delegate therapeutic tasks to for assistants to deliver. This lack of clarity could also result in additional responsibilities for assistants leading to increased time demands (Lizarondo et al, 2010).

6.4.5 Equity of access

This is the first study exploring the opinions of commissioners in stroke rehabilitation services. In doing so the priority of commissioners to reduce inequity in services is highlighted, along with the lack of a unified selection of priorities informing the commissioning process and monitoring the effectiveness of service delivery.

The priority of achieving and providing an equitable service was identified in two out of four qualitative questions commissioners answered within the current study; priorities when commissioning stroke services and changes to improve services.

All respondents provided different answers to how the effectiveness of stroke rehabilitation services are evaluated. This may be the result of a current lack of guidance for commissioners from a national level. However, in 2012 the first set of Commissioning Outcomes Framework (COF) indicators published was by NICE, which included cardiovascular disease. From April 2013 it is intended that this framework will be used to measure the quality of healthcare which will then be

commissioned by the Clinical Commissioning Groups (CCGs). This will enable the providers of services to be accountable and aims to improve the standards of care delivered. Within the Cardiovascular COF nine indicators are identified within three domains; preventing people from dying prematurely, enhancing quality of life for people with long term conditions and helping people to recover from episodes of ill health or following injury . Four of the nine indicators relate to rehabilitation; people with stroke who are discharged from hospital with a joint health and social care plan, people who have received psychological support for mood behaviour and cognitive disturbance by 6 months after stroke, people with stroke who are reviewed 6 months after leaving hospital and people with stroke who are supported to leave hospital by a skilled stroke early supported discharge team. The implementation of the COF may provide a unified approach for commissioners to evaluate stroke rehabilitation services from April 2013, removing the current lack of standardisation.

7. Overall Study Summary

The aim of this study was to evaluate the quality of stroke rehabilitation services and the implementation of national guidelines within Greater Manchester. To achieve this, the study addressed the following objectives:

- Identify national quality standards for stroke rehabilitation
- Develop framework for stroke rehabilitation from national quality standards
- Establish state of implementation of quality standards within Greater Manchester
- Identify barriers and facilitators to implementation of national quality standards
- Identify areas of inequity in service provision for stroke rehabilitation in Greater Manchester
- To explore staff perceptions of the amount of therapy stroke rehabilitation patients receive
- Identify patients' satisfaction with information provision
- Identify how often patients would like to receive therapy

This is the first study to systematically compile current national recommendations for stroke rehabilitation, to develop a framework for stroke rehabilitation, to evaluate compliance across numerous service providers, to explore barriers and facilitators to the implementation of national recommendations and to establish commissioners' priorities for services.

This review of national clinical guidelines has identified 21 standards that apply to stroke rehabilitation and all stroke patients; 13 relating to the overall structure of stroke rehabilitation services and eight specifically to individual patient care. Compliance with these standards was variable. Primary Stroke Centres demonstrated a greater compliance than District Stroke Centres indicating a two tier service. Currently measures of stroke rehabilitation are not routinely included

in audits of stroke care (which focus on the acute stages of the pathway) therefore this study provides a unique insight into the quality of current services. National audits such as the Sentinel Audit (RCP) and the Care Quality Commission (CQC) have started to address areas of rehabilitation but these are limited. Neither provides the comprehensive evaluation that is included in the current study. Although the data is limited to Greater Manchester, nevertheless the researcher feels that the findings are generalisable given the large cohort involved and the range of types of hospital, geographical area and socio-economic population involved. Further research addressing more specific elements of the recommendations within national documents may help to refine and inform future national standards and audit.

As a result of this current research, the identified standards resulted in a core set of standards being adopted across all hospital and community stroke rehabilitation facilities within Greater Manchester. Where services were found to not be delivering the standards during a peer review process of all stroke rehabilitation sites, specific actions were set to work towards delivering the specified standards. The standards identified by the current research have also been utilised by commissioners to inform service specifications when establishing stroke rehabilitation services and when reviewing contracts.

The finding that inequity exists in services delivered at PSCs and DSCs has informed a review of the hub and spoke model used within Greater Manchester. As a result services are currently undergoing a redesign to further centralise in order to deliver a greater proportion of the rehabilitation pathway within the PSCs, with more patients discharging directly from the PSCs to home. This redesign intends to provide a greater proportion of stroke patients with a higher quality service in line with national recommendations.

Staffing levels do not impact on delivery of national standards within stroke rehabilitation. This indicates that the intervention patients receive is dependent upon processes other than the amount of therapy staff within the team.

Future implications for local services within Greater Manchester include the need to explore potential factors resulting in the different compliance of DSCs and PSCs. Focused service improvement work may facilitate greater implementation of specific recommendations found to be lacking in individual sites. National and local commissioning bodies should consider amending the tariff for stroke rehabilitation to incentivise certain features such as early supported discharge and six month review being delivered. At a local Greater Manchester and a national level facilitation of sharing good practice may assist teams in implementing changes in the way their service operates. In particular those teams who are delivering active stroke rehabilitation 6 days a week, maximising social participation and a seamless transfer of care from hospital to community services should be encouraged to share with other teams the processes supporting delivery of these recommendations. This could be facilitated by the collation of case study examples or through a learning event.

Multiple national documents feature stroke rehabilitation standards but there is limited national and local monitoring of adherence. 21 national standards relating to stroke rehabilitation services were identified that applied to all patients regardless of severity or site of stroke; 13 related to the structure of the services and eight specifically relating to individual patient care. Compliance to these standards was variable. All services provided a weekly multidisciplinary team meeting and most patients spent 90% of their hospital admission on a stroke ward and commenced rehabilitation as soon as possible. However, few patients received a review of their condition six months after the stroke, received therapy six days a week or received a joint health and social care

plan upon discharge from hospital. Inequity of service provision was also evident, particularly in the use of effective multidisciplinary goals setting, the intensity of therapy provided and whether mood disorders were assessed and treated promptly. Despite suggestions from staff, staffing levels did not impact upon compliance to these national recommendations. However, the longevity and prominence of the standard in national literature does appear to be a factor in compliance, with the long-standing and most prominent recommendations achieving the greatest compliance.

Patients felt that they were treated with dignity and that the doctors did all they could during their stroke rehabilitation. Older patients were more satisfied than younger patients with the service they received and this is the first study to identify that patients with a more recent onset of stroke were more satisfied than those who had a stroke more than six months previously. However, they did not feel that they received information regarding the goals for their rehabilitation or enough therapy. This is reiterated in staff opinions that patients should receive more therapy than they currently do; staff felt patients should receive more than three hours of therapy per day despite currently receiving less than 45 minutes. The amount of therapy delivered by different professions was disparate, with speech and language therapists providing less than occupational therapists, physiotherapists or nursing staff. Staff felt that the primary factor limiting the amount of therapy they were able to offer patients was inadequate staffing levels, however compliance to the recommended therapy level (45 minutes per day per profession) was not associated to staffing levels. Staff were supportive of changes in service delivery to include weekend working, group treatment and delivery of therapy by assistants to increase the amount of therapy patients receive.

Diversity in commissioners' responses to the survey highlights the disunity in the commissioning process. Different monitoring mechanisms are used by service commissioners to evaluate the effectiveness of stroke rehabilitation services, indicating the potential for different priorities and

accountability. The commissioners' primary priority was to improve outcomes for the patient including increasing life expectancy. Commissioners would like to see changes that improved the equity of stroke rehabilitation services.

This study highlights the inequity in current delivery of stroke rehabilitation, the lack of detail within the national recommendations relating to stroke rehabilitation care, inconsistency in the commissioning process along with a willingness of staff for change.

8. Implementation in Clinical Practice

This study is the first to systematically compile and evaluate national recommendations relating to stroke rehabilitation services. As a result a framework for stroke rehabilitation has been developed. The resulting framework has been distributed and accepted for use both locally to all stroke rehabilitation teams within Greater Manchester and to the National Stroke Improvement team, (more detail will be provided further within this chapter). This framework provides detail regarding service delivery and structure to clinicians, managers and commissioners and has been used for service improvement and commissioning of new stroke rehabilitation services. Specifically, the resulting document has informed the service specification of five newly established Early Supported Discharge Teams. A smaller selection of the standards have been utilised to inform a Greater Manchester wide 12 month audit of stroke rehabilitation, funded by Public Health. This piece of work also included service improvement support to increase services compliance to the selected standards. In addition the standards developed within this study have led the Greater Manchester Cardiovascular Network to develop of a collection of minimum standards which all stroke rehabilitation patients entering services within Greater Manchester should receive, a rehabilitation 'bundle'. Work is on-going to develop an electronic system to continually assess the services' compliance to the standards in this bundle and to regularly report the results to clinicians, managers and commissioners to facilitate service monitoring and improvement. The standards have also been used to external peer review the 11 stroke rehabilitation services in Greater Manchester. This was followed by a period of focussed work with the stroke rehabilitation teams, managers and commissioners to improve service quality. The service in these sites is currently being re-audited to assess impact of this work and the current service quality. Furthermore, the standards have been developing a 'model service specification' for hospital and community based

services in Greater Manchester, which has been used by commissioners to develop new services and contracts with local service providers. Significant changes in service delivery that have been implemented as results are establishing a therapy service over weekends, community stroke services and early supported discharge teams.

The information gathered from patients and staff relating to dissatisfaction about the amount of therapy provided has led to a focused piece of work to increase the amount of therapy patients receive and their activity during the day. GMCCSN have led a piece of work with all 11 stroke rehabilitation units in Manchester to develop these areas. By introducing patient timetables, group social and exercise sessions, opportunities to practice functional tasks and exercise independently and a programme of social activities, this work has resulted in a three fold increase in the amount of therapeutic activity patients receive daily whilst in rehabilitation. This piece of work has resulted in national recognition including publication in national documents and becoming a finalist in a National Health Service Journal Award.

The compendium of stroke rehabilitation standards developed within this study will be utilised in the future to evaluate the performance of stroke rehabilitation services within Greater Manchester and contribute to the accreditation of stroke rehabilitation services. Work is under-way to utilise the standards at a national level in 'spot light' audits of stroke rehabilitation hosted by the Royal College of Physicians (RCP) and conducted with all services across the UK.

9. Further Research

This study provides information regarding current stroke services, however in doing so, raises additional questions requiring further research. Specifically further research into the structure of multidisciplinary team meetings, optimal timing for rehabilitation to commence, goal setting, mood assessment, dignity in delivery of care, information provision and the delivery of therapy by assistants would guide service delivery in the future. Each of these will be considered individually in the upcoming paragraphs.

The current study identifies that teams are carrying out multidisciplinary team meetings (MDTMs) at least weekly. However, the review of the national standards highlights a lack of specificity and highlights possible alternatives to this structure. National recommendations for stroke MDTMs lack specificity in the optimum structure of the meetings. Further qualitative observational research exploring the different structures that are currently used and the impact different structures has on communication amongst members of the team and on decision making could provide guidance nationally to structure MDTMs. Specifically, there is no guidance in national standards or literature regarding the optimal attendance at the meetings; the number of attendees and the grades of staff. Quantitative research into the numbers of attendees, grades of staff and the range of disciplines represented at the meeting and the impact these factors have on decision making would be beneficial. The current study has identified that the national recommendations require a MDTM at a minimum frequency of once a week. Ellrodt et al (2007) identified that a MDTM three times a week had a positive impact on the team's compliance to national recommendations, however, further quantitative research is required comparing weekly and three times a week MDTMs on the length of hospital stay for patients. Qualitative observational research should be

carried out exploring different frequencies of team meetings and the impact this has on discharge planning and actioning decisions made at previous meetings. Literature describes an alternative to the weekly MDTM in the use of daily board rounds. Aetiologies apart from Stroke have identified the impact these shorter regular meetings have on communications between members of the team and on reducing the length of hospital stay for the patient. Further quantitative research identifying whether the use of daily board rounds rather than weekly meetings reduces the amount of time patients spend in hospital following a stroke would provide evidence as to whether this structure should be advocated in future national recommendations. Qualitative research exploring the effectiveness of communication between team members at daily board rounds compared to that in weekly meetings would also provide services with more information regarding how effective this structure may be.

Commencing rehabilitation as soon as the patient is medically stable had a high compliance within the current study. Although the national recommendations and literature into the field agree that rehabilitation should be commenced 'early' for stroke patients the optimal timing for rehabilitation to start is unclear in the literature and therefore lacks clarity in the national documents. Literature uses a range of three to 30 days as a guide for commencing therapy (Cifu and Stewart, 1999). Despite Musicco et al (2003) comparing the effectiveness of commencing therapy pre and post seven days of the onset of the stroke, this was an observational study. A quantitative study addressing the research question 'is commencing stroke rehabilitation before or after 7 days of stroke onset more effective?' would provide more evidence regarding these timings. A randomised control trial comparing pre and post seven day commencement of therapy on the patients functional recovery, reduction in impairment and length of stay within hospital would provide more specific guidance for service in the commencement of therapy. The recommendation to commence therapy 'as soon as the patient is medically stable' also lacks specificity and requires a

subjective clinical judgement. Further quantitative research looking at the different features of the patient's presentation and their ability to participate in therapy would provide information on the indicators for entry to rehabilitation services.

Completion of an assessment of the patient's mood is shown as inconsistent and inequitable in the current study. Within the national recommendations the optimal time when this assessment should be carried out varies. Further research is therefore required to address the question 'What is the optimal timing for mood assessment following stroke.' A quantitative approach using three cohorts should be utilised; on entering rehabilitation, six weeks and six months after onset of the stroke as detailed in varying national documents and existing literature. Each cohort should receive a mood assessment at one these identified time points and information collected on the sensitivity of the assessment to detect a mood disorder. These results would provide further detail for future national recommendations and provide objective time frames for monitoring service delivery. Further research identifying which professional is able to carry out a mood assessment with stroke rehabilitation patients and the competencies required to complete this would provide more specificity to the existing guidelines and remove any conflicting recommendations. A qualitative approach including the conducting of a literature search and content analysis of existing literature to identify the competencies required to conduct a mood screen would address the outstanding research question 'What competencies are required to carry out a mood assessment for stroke patients?' The results of this analysis could then lead to further research addressing the question 'which members of the multidisciplinary stroke team can carry out a mood assessment?' A quantitative analysis of existing person specifications of members of stroke teams in addition to qualitative information gathered through structured interview with members of the multidisciplinary stroke team would provide the information to this question.

Despite goal setting being regarded as fundamental component of rehabilitation (Scobbie, Dixon and Wyke, 2010) the current study finds that teams are inequitable in setting MDT goals within five days of assessment. Currently limited research existing exploring the limiting factors to poor compliance, with time pressures of the goal setting process being cited as a potential barrier (Parry, 2004; Brown et al, 1995; Delbanco, 1992). Further qualitative research using interviewing of clinicians involved in the delivery of stroke rehabilitation would be explore the perceived barriers to the goal setting process. The results of the proposed research question 'What are the barriers to MDT goal setting within stroke rehabilitation' would then have the potential to influence service improvement work to address the identified barriers. Additionally quantitative research identifying the amount of time the goal setting process takes at varying points in the rehabilitation process would provide greater empirical support for the suggestions of Parry (2004), Brown et al (1995) and Delbanco (1992). This information could then be utilised to assist clinicians in planning the dedicated time to allow for the goal setting process. A possible barrier to implementation may be inconsistency of timings within the national documents (RCP, 2008; Healthcare for London, 2009), however the current research does not explore whether this is a barrier. Including this within a qualitative interview with clinicians would address the future research question 'Does conflicting national recommendations on goal setting impact compliance?' The findings of this research question has the potential to inform other areas of stroke rehabilitation and the wider health care areas in which other conflicts in national recommendations occur. In order to provide greater consistency in future recommendations on MDT goal setting in stroke rehabilitation the research question 'What is the optimal timing for goal setting to occur in stroke rehabilitation?' would need to be addressed. This question would require cohorts of patients within stroke rehabilitation who receive the same goal setting process at varying time points within their rehabilitation to allow for comparison. Each cohort would receive the same goal setting process with the only variable being the varying time points. A mixed methodology including quantitative analysis of achievement of

goals set and a qualitative analysis of patient satisfaction would provide a comprehensive analysis of the effectiveness of the process at varying time points.

As with previous research, the current study identified that some patients remain dissatisfied with the amount of dignity received during their care. The current research also agrees with previous research that time pressures perceived by staff can impact care delivered to patients. It could therefore be hypothesised that staffing pressures could impact on the dignity of the care provided, however, a gap remains in the literature regarding any association between staffing levels and whether patients feel they have been treated with dignity. A question to be addressed by future research could be 'Does staffing levels impact on dignity of care?' This question would require a quantitative approach to collect information on staffing levels. A quantitative scaling of perceived dignity could be utilised to collect information from patients and then statistically compared to the quantitative data of staffing levels. The information gained through the suggested research could inform future guidelines regarding staffing levels and assist in local planning of staffing required.

The current study identifies that patient's remain dissatisfied with the information they receive during stroke rehabilitation, however does not explore satisfaction with differing methods to provide information. Previous research explores patient satisfaction with individual methods of information delivery however no multi cohort study exists comparing all potential methods. A cross over design could be utilised with the same cohort of patients reporting satisfaction with multiple methods of information delivery, however this design would have potential bias and a learning effect as successive information methods are compared. To prevent this each individual cohort would need to be exposed to only one method of delivery within the study.

Providing patients in stroke rehabilitation with an adequate amount of therapy is currently high on

the national agenda, providing a challenge for individual clinicians and stroke services. The current study supports previous findings that patients remain dissatisfied with the amount of therapy they receive. One approach to provide more therapy is to utilise therapy assistants in the delivery of treatment, however the evidence to support this remains sparse, giving rise to the research question 'Is therapy delivered by rehabilitation assistants as effective as therapy delivered by qualified staff in stroke rehabilitation?' This question would require a quantitative RCT to compare two cohorts of patients within stroke rehabilitation; one treated solely by qualified therapists and one cohort of patients receiving treatment delivered by therapy assistants following assessment by qualified therapists. This design would require quantitative analysis of change in functional outcome or goal achievement comparison pre and post rehabilitation. Results of this suggested study would help to inform staffing levels and service structure within stroke rehabilitation.

Further research addressing the questions posed in the paragraphs above would have the potential to influence future national recommendations and service delivery in stroke rehabilitation. The increased evidence base would provide more detail to the existing national recommendations, which currently lack specificity, and has the potential to facilitate compliance by reducing conflict and lack of specificity in the national standards. This also has the potential to increase the ease of monitoring delivery of services. The findings would also help to inform local service managers and individual clinicians to develop local service delivery.

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Appendix A: Complete reference list for literature review of national recommendations for stroke rehabilitation

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Dear

The National Sentinel Audit for Stroke carried out every 2 years by the Royal College of Physicians has previously described stroke care as expensive and inefficient. Stroke care costs the NHS around £3 billion a year in direct care costs within a wider economic cost of about £8 billion. Recent developments in stroke care both nationally and locally have focused on improving the hyper acute pathway. Within Greater Manchester this has manifested in the introduction of a hub and spoke model of care, including one comprehensive stroke centre, two primary stroke centres in addition to district stroke centres.

Recently several publications have highlighted the lack of improvement in the stroke rehabilitation pathway in comparison to the hyper acute. 'Stroke patients may spend several days and weeks in hospital, but it is the months and years after discharge that they, their families and carers experience the full impact of stroke' (NAO, 2010). In December 2010 the Greater Manchester and Cheshire Cardiac and Stroke Network (GMCCSN) commenced a piece of work into obtaining a baseline of current local stroke rehabilitation services. The aim of this work was to gain an insight into the services offered, adherence to national guidelines, barriers to improving services and equity of stroke rehabilitation services offered across Greater Manchester.

This baseline exercise identified the inequity of services offered across the Greater Manchester conurbation, a wide variety of length of stay and places of discharge, a willingness of staff to change and service users dissatisfaction of amount of therapy and length of wait to access therapy.

As a result GMCCSN are launching a project to improve rehabilitation within stroke care; The ImpReS in Greater Manchester Project. This project will aim to:

- Agree standards of care for stroke rehabilitation across the conurbation
- Agree an algorithm of care for stroke rehabilitation
- Provide more timely discharge planning within rehabilitation
- Create a more active environment on the ward for patients
- Improve joint working between health and social care
- Reduce length of stay in acute setting
- Reduce wait to access community services
- Provide a toolkit of assessments to be used within stroke rehabilitation to inform prognosis, discharge destination and care
- Improve communication amongst the MDT

GMCCSN would like to work with a small number of pilot sites to implement this project over a 12 month period. In order to become a pilot site each individual centre would need to fulfil the following:

1. A 12 month commitment to be involved in the project
2. Support from Chief Executive
3. Support from PCT
4. To identify a change champion from the team to work with the project team from GMCCSN

- approximately half a day per week
5. Allow a GMCCSN team member to observe 3 MDTs at commencement and completion of the project to evaluate changes in team communication
 6. All members of the MDT to be able to access half a days training, provided by GMCCSN
 7. All members of the MDT to complete a questionnaire upon commencement with the project

GMCCSN will provide the following:

Support from project team at GMCCSN

Facilitation of implementation of the project

Project management

Change management support inc facilitating process mapping events if required

Back fill monies to compensate for the amount of time their staff will spend on the project

Training in the use of assessments within the developed toolkit

We invite any sites wishing to express their interest in becoming a pilot site for this project to contact:

For further information please do not hesitate to contact Alison McGovern (Alison.mcgovern@nhs.net tel: 07769880427) to discuss.



Dear _____,

The Greater Manchester & Cheshire Cardiac and Stroke Network (GMCCSN) is starting a project to look at stroke rehabilitation services with a view to re-design them so that national standards are met and best practice is implemented. The project is called ImpReS (Improving Rehabilitation for Stroke) and is led by Dr Sarah Tyson of University of Salford and Alison McGovern from the Greater Manchester and Cheshire Cardiac and Stroke Network.

The first stage is to establish what services are provided already and what patients, their carers and families and clinical staff think of them so that we can identify the gaps that need to be filled and how services need to be re-designed. This will be achieved through the use of an audit of stroke rehabilitation services and the services individual patients have received along with questionnaires of patients, staff and commissioners.

The anonymised information collected through this project may be used for research purposes as part of a Professional Doctorate and disseminated through academic publications.

For further information please do not hesitate to contact Alison McGovern (Alison.mcgovern@nhs.net tel: 07769880427) to discuss.

Kind regards,

Alison McGovern
Quality Improvement Manger
Greater Manchester and Cheshire Cardiac and Stroke Network
Regent House
Heaton Lane
Stockport
SK4 1BS

Appendix D: Core recommendations service delivery

1. Patients who need ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment should be treated in a specialist stroke rehabilitation unit (NICE, 2010) with access to a specialist MDT, dedicated social worker and psychological input.
2. There should be no waiting lists for stroke rehabilitation within the hospital setting (Healthcare for London)
3. The MDT should hold a structured team meetings at least weekly to identify patients' problems, monitor patients' progress, plan care and prepare for discharge. The MDT meeting should involve AHPs, nurses, medical and social services team members
4. Active specialist stroke rehabilitation should be provided for a minimum 6 days a week for all patients
5. The Stroke Rehabilitation Unit should demonstrate specific strategies to actively involve families and carers in day-to-day care and rehabilitation (BASP)
6. The stroke rehabilitation unit should have specific strategies to maximise patients' activity and opportunities to practice functional tasks throughout their day.
7. Transition to community rehabilitation services should be seamless with no waiting time (Healthcare for London).
8. The hospital in-patient Stroke Rehabilitation Service should provide comprehensive information to community services and primary care in a timely manner prior to the patient's discharge from hospital (BASP, 2010)
9. Where patients are transferred to community services, they should be followed up by specialist stroke community rehabilitation services within 72 hrs (CQC), or within 24 hours for patients receiving an ESD service.
10. A self referral policy to re-access specialist rehabilitation services should in place and the patient and family should be aware of re-referral routes
11. Patients' psychological and social needs should be assessed including screening for depression and anxiety within the first month of stroke and/or on entering rehabilitation using a validated simple screening test. Any patient with depressed mood should be provided with appropriate information and advice and the opportunity to talk about the impact of illness upon their lives. (RCP)
12. At least 40% of patients should be supported by an ESD team. (Accelerating Stroke Measures, NHS Improvement) (BASP)

13. All stroke survivors and their carers to receive regular reviews of their health and social care needs, including a review specifically six months after they have left hospital.

Appendix E: Core recommendations delivery of care to specific patients

1. Patients should spend at least 90% of their hospital stay on a specialist stroke ward (National Stroke Strategy)
2. A named key worker is identified for each patient in each care setting
3. Rehabilitation will begin for patients with enduring impairments and activity limitations as soon as they are medically stable and able to tolerate active treatment and continue while the ability to benefit remains and there are realistic goals (National Stroke Strategy; Healthcare for London)
4. Patients should have documented MDT goals within 5 days (NICE, 2010) of initial assessment by the stroke rehabilitation team
5. Levels of impairment and activity, and progress should be assessed and monitored using standardised measurement tools within one week of arrival using locally agreed tools and protocols
6. All patients should receive a minimum of 45 minutes of physiotherapy, occupational therapy and speech and language therapy per day as appropriate for the individual's needs
7. Each patient and / or carer should receive a copy of a joint health and social care plan upon leaving hospital
8. Patients' psychological and social needs should be assessed including screening for depression and anxiety within the first month of stroke and/or on entering rehabilitation using a validated simple screening test

Appendix F: Patient specific audit score sheet

	Standard	Yes / No
1	Patients should spend at least 90% of their stay on a specialist stroke ward (National Stroke Strategy)	
2	A named key worker to be identified for each patient in each care setting. The key worker is the first port of call. The role could be taken by any other appropriate health professional (Healthcare for London). This person will be responsible for facilitating a seamless transfer of care into the rehabilitation setting and into community services	
3	Rehabilitation will begin for patients with enduring impairments and activity limitations as soon as they are medically stable and able to tolerate active treatment. and continue while the ability to benefit remains and as long as there are realistic goals (National Stroke Strategy; Healthcare for London; American Stroke Association)	
4	Levels of impairment and activity and progress should be assessed and monitored using standardised measurement tools within one week of arrival and at regular intervals throughout their rehabilitation in both hospital and the community.	
5	All patients should receive a minimum of 45 minutes of physiotherapy, occupational therapy <u>and</u> speech and language therapy per day as appropriate for the individual's needs.	
6	Patients should have documented MDT goals within 5 days (NICE, 2010) of initial assessment by the stroke rehabilitation team	
7	Each patient and / or carer should receive a copy of a joint health and social care plan upon leaving hospital. A workable, clear plan that has fully involved the individual (and their families where appropriate) and responded to their particular abilities, circumstances and goals developed by health and social care services (with other services such as transport and housing as necessary), in conjunction with the patient and /or family should be in place and a copy received by the individual and / or family before the patient leaves hospital.	
8	Patient is screened for depression by a service providing psychological support capable of managing mood, behaviour or cognitive disturbance within 6 weeks of the stroke	

Appendix G: Service overview audit score sheet

	Standard	Yes / no
1	Patients who need ongoing inpatient rehabilitation after completion of their acute diagnosis and treatment should be treated in a specialist stroke rehabilitation unit (NICE, 2010) with access to a specialist MDT, dedicated social worker and psychological input.	
2	There should be no waiting lists for stroke rehabilitation within the hospital setting (Healthcare for London)	
3	MDT structured team meetings at least weekly. The MDT meeting should include AHPs, nurses, medical and social services team members	
4	Active specialist stroke rehabilitation should be provided for a minimum 6 days a week for all patients	
5	The Stroke Rehabilitation Unit should demonstrate specific strategies to actively involve families and carers in day to day care and rehabilitation (BASP)	
6	The stroke rehabilitation unit should have specific strategies to maximise patients' activity and opportunities to practice functional tasks throughout their day	
7	Transition to community rehabilitation services should be seamless with no waiting time (Healthcare for London). Stroke teams need to have in place specific strategies to enable early engagement of community and social care staff in planning of discharge and transfer of care. Each patient should have times, dates and locations of follow up appointments upon leaving hospital and the name and contact details of people who will be involved in their care upon leaving hospital	
8	The hospital inpatient Stroke Rehabilitation Service provides comprehensive information to community services and primary care in a timely manner prior to patient discharge to community services (BASP, 2010)	
9	Where patients are transferred to community services, they will be followed up by specialist stroke community rehabilitation services within 72 hrs (CQC), or within 24 hours for ESD.	
10	A self referral policy to re-access specialist rehabilitation services is in place and the patient and family are aware of re-referral routes	
11	A pathway to assess and treat mood is in place	
12	An Early Supported Discharge Team is in place	
13	A service to review all stroke survivors at 6 months after the stroke is operational	

Appendix H: Complete reference list for literature review of satisfaction within stroke services

Patient Satisfaction

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Does Patient Satisfaction Reflect Differences in Care Received After Stroke?

Pandora Pound, PhD; Kate Tilling, MSc; Anthony G. Rudd, FRCP; Charles D.A. Wolfe, FFPHM
Stroke 1999, 30:49-55

Satisfaction Questionnaire

Patients are asked to agree, strongly agree, disagree, or strongly disagree with each of the following statements:

Inpatient Care

1. I have been treated with kindness and respect by the staff at the hospital.
2. The staff attended well to my personal needs while I was in the hospital (eg, I was able to get to the toilet whenever I needed).
3. I felt able to talk to the staff about any problems I might have had.
4. I have been given all the information I want about the causes and nature of my illness.
5. The doctors have done everything they can to make me well again.

Therapy and Recovery

6. I am satisfied with the type of treatment the therapists have given me (eg, physiotherapy, speech therapy, or occupational therapy).
7. I have had enough therapy (eg, physiotherapy, speech therapy, or occupational therapy).
8. I am happy with the amount of recovery I have made since my illness.

Services After Discharge

9. I was given all the information I wanted about the allowances (eg, welfare benefits) or services (eg, home help, meals on wheels, district nurse) I needed after leaving the hospital.
10. Things were well prepared for my return home.
11. I get all the support I need from services such as meals on wheels, home help, and district nurses.
12. I am satisfied with the amount of contact I have had with the hospital since I have been discharged.



Rehabilitation in Stroke Survey

We are working to **IMPROVE STROKE REHABILITATION** services.

We need to find out what people with stroke think of services so we can see how services need to be improved.

We would be very grateful if you complete this questionnaire about your stroke rehabilitation. If you find it difficult to complete the form yourself and want someone to help you, that is fine.

The survey is voluntary. Completing it will not affect your treatment. The information will be confidential and will not be seen by the staff who are treating you. The anonymised information collected through this project may be used for research purposes as part of a Professional Doctorate and disseminated through academic publications.

When complete, please return either the family support worker or the box provided on the ward.


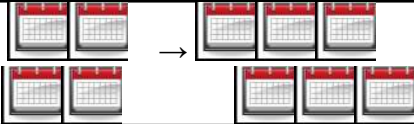
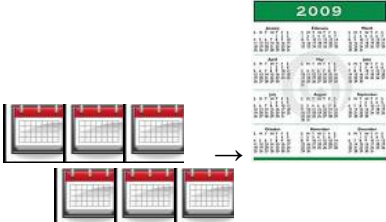


Yours faithfully,






Sarah Tyson (Clinical Lead for IMPRES)

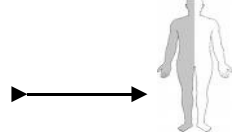
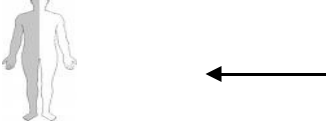
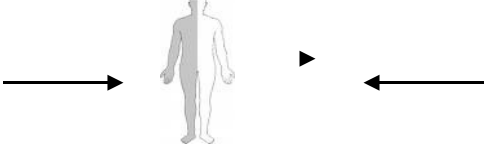
Stroke Rehabilitation Questionnaire for Patients

1: How old are you?	
---------------------	--






2: How long ago did you have your stroke? ✓	
--	--

Less than 4 months ago? ↓		
4 – 6 months ago?		
6 – 12 months ago?		
1 year to 2 years ago?		
Over 2 years ago?		

3: How badly has the stroke affected you? ✓	
Not at all	
Slightly	
Need some help	
Moderate	
Severely	

4: Which side has been affected? ✓	
Left	
Right	
Both	

5: In which hospital did you have rehabilitation? ✓	
Wythenshawe Hospital	
Fairfield General Hospital	
Rochdale Infirmary	
North Manchester General Hospital	
Royal Oldham Hospital	
Tameside General Hospital	
Stepping Hill Hospital	
Manchester Royal Infirmary	
Trafford General Hospital	
Salford Royal	
Royal Bolton Hospital	

6: Which therapy did you have? ✓	
Group with therapist	
Group with helper	
1 to 1 with therapist	
1 to 1 with helper	
Instructions to do alone	
Not sure	?

Other	
-------	--



7 – 11: While In Hospital...

Strongly disagree Disagree Agree Strongly Agree

7: The doctors are doing all they can



8: I am satisfied with my recovery



9: I am treated with DIGNITY

10: I can talk to staff about problems


















11: All my questions are answered




?



12 – 16: While in Hospital...

Strongly disagree Disagree Agree Strongly Agree

					
12: I've discussed my goals					
13: I've got written goals	 				
14: Going HOME is PREPARED					
15: Family are involved in rehab					
16: I have all the information I want					
17 – 19: While in Hospital...					
		Strongly disagree	Disagree	Agree	Strongly Agree
					
17: I have had enough therapy					

					
18:	I'm happy with the therapy 				
19:	I've met the Stroke Association 				

Please tell us anything else you want us to know about your experience of stroke rehabilitation IN HOSPITAL and how we can improve it:

THANK YOU FOR COMPLETING THE QUESTIONNAIRE

**When complete, please return either the family support worker or the box provided on the ward.
If you prefer, you can return the questionnaire back to the Greater Manchester and Cheshire Cardiac and Stroke Network using the following address;**

**Alison McGovern
Greater Manchester and Cheshire Cardiac and Stroke Network
9th Floor Regent House,
Heaton Lane
Stockport
SK4 1BS**



Dear _____ ,

RE: enclosed questionnaires

Following recent discussions with the Stroke Association, Chris Larkin, Assistant Regional Director, has agreed to support the ImPRES project into stroke rehabilitation. ImPRES is a study within the Greater Manchester and Cardiac Stroke Network looking at current stroke rehabilitation across the Network. As part of this we are seeking patient's views on the services they are, or have, received.

I would appreciate it if you could distribute the enclosed questionnaires. We are aiming to receive the same number of responses as the number of beds in each stroke rehabilitation unit i.e. 10 beds, 10 completed questionnaires. As not all patients will be suitable to approach to complete the questionnaires I would appreciate it if you could continue to collect completed questionnaires until the number of beds is reached.

Please use your judgement as to who to distribute the questionnaire to. The content has been made aphasia friendly and, as such, aphasic patients should be included in this study. However, please use your own discretion as to whether the patient is well enough and has the cognitive ability to participate. Please ensure that the cover sheet is attached to the questionnaire and is either read by yourself to the patient or by themselves prior to completion.

Either a carer or yourself can assist the patient in completing the questionnaire if this is required. Once completed please seal in the SAE envelopes provided and return to the Network.

Please be advised that involvement in this project is entirely voluntary. Any information provided will not be traceable to individuals completing the questionnaire or to individual teams providing care. The results will not be fed back to individual teams but will be presented as a Network whole. The anonymised information collected through this project may be used for research purposes as part of a Professional Doctorate and disseminated through academic publications.

If you have any queries regarding this project or the questionnaire please do not hesitate to contact me.

Please accept my thanks in advance for assisting in the distribution and return of the enclosed questionnaires.

Kind regards,

Alison McGovern
Quality Improvement Manger
Greater Manchester and Cheshire Cardiac and Stroke Network
Regent House

Heaton Lane
Stockport
SK4 1BS



Stroke Rehabilitation Staff Questionnaire

Name of Team and Organisation:

1. Health Professionals

○ What Profession are you? (please tick as appropriate)

Doctor	<input type="checkbox"/>	Social Worker	<input type="checkbox"/>
Stroke Co-ordinator	<input type="checkbox"/>	Family Support Worker	<input type="checkbox"/>
Nurse (who works days)	<input type="checkbox"/>	Generic Support Worker/	
Nurse (who works nights)	<input type="checkbox"/>	Healthcare Assistant	<input type="checkbox"/>
Physiotherapist	<input type="checkbox"/>	Rehabilitation Assistant	<input type="checkbox"/>
Occupational Therapist	<input type="checkbox"/>	Pharmacist	<input type="checkbox"/>
Speech and Language Therapist	<input type="checkbox"/>	Administrative/Clerical	<input type="checkbox"/>
Psychologist	<input type="checkbox"/>	Other (please state)	<input type="checkbox"/>
Dietician	<input type="checkbox"/>		

1.2 What grade/band are you?

1.3 How many years have you been working in stroke care?

1.4 In which area/Trust is your service based?

If you work in a Hospital, what type of rehabilitation service do you work in?
(please tick that apply)

- | | | |
|--|----|--------------------------|
| ⌘ A dedicated, specialist multi-disciplinary stroke rehabilitation unit | a. | <input type="checkbox"/> |
| ⌘ A specialist multi-disciplinary team covering beds around the hospital | b. | <input type="checkbox"/> |
| ⌘ A specialist multi-disciplinary neurological rehabilitation unit | c. | <input type="checkbox"/> |
| ⌘ A general multi-disciplinary rehabilitation team (e.g. elderly care) | d. | <input type="checkbox"/> |
| ⌘ Combined acute and rehabilitation stroke unit | e. | <input type="checkbox"/> |
| ⌘ Acute stroke unit | f. | <input type="checkbox"/> |
| ⌘ Other (please state) | g. | <input type="checkbox"/> |
| ⌘ Not applicable | h. | <input type="checkbox"/> |

If other, please state:

If you work in the Community, what type of rehabilitation service do you work in? (please tick that apply)

- | | | |
|--|----|--------------------------|
| • An early supported discharge stroke team | a. | <input type="checkbox"/> |
| • A specialist community stroke rehabilitation team | b. | <input type="checkbox"/> |
| • A general multi-disciplinary rehabilitation team (e.g. elderly care) | c. | <input type="checkbox"/> |
| • A specialist multi-disciplinary neurological rehabilitation team | d. | <input type="checkbox"/> |
| • A uni-disciplinary outpatients therapy | e. | <input type="checkbox"/> |
| • Intermediate care in the community | f. | <input type="checkbox"/> |
| • An Outreach team (Inpatient and Outpatient) | g. | <input type="checkbox"/> |
| • Other | | |

If other, please state:	h. <input type="checkbox"/>
Where would you provide rehabilitation? (please tick that apply)	
<ul style="list-style-type: none"> ⤴ Inpatient ward ⤴ Patient's home ⤴ Residential care/nursing homes ⤴ Hospital Outpatients clinic ⤴ Another community setting (e.g. health or leisure centre, fitness gym) ⤴ A day hospital/day facility ⤴ Other 	<ul style="list-style-type: none"> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> g. <input type="checkbox"/>
If other, please state:	

2. Therapy	
2.1 If the patient required it, how many days a week could you offer therapy?	
7 days <input type="checkbox"/>	e. 3 days <input type="checkbox"/>
6 days <input type="checkbox"/>	f. 2 days <input type="checkbox"/>
5 days <input type="checkbox"/>	g. 1 day <input type="checkbox"/>
4 days <input type="checkbox"/>	
2.2 Generally, how much treatment/activity do your patients receive from you per day?	
<ul style="list-style-type: none"> ⤴ 15-30 minutes <input type="checkbox"/> ⤴ 31-45 minutes <input type="checkbox"/> ⤴ 45 mins-2hr <input type="checkbox"/> 	<ul style="list-style-type: none"> d. 2hrs-3hrs <input type="checkbox"/> e. 3hrs-4hrs <input type="checkbox"/> f. >4hrs <input type="checkbox"/>
2.3 Do you think you are able to give your patients as much care/therapy as they need to meet their needs?	
<ul style="list-style-type: none"> • Always • Usually • Occasionally • Never 	<ul style="list-style-type: none"> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/>
2.4 What limits the amount of recovery patients make?	
2.5 Do you think patients get enough therapy time during their rehabilitation?	
<ul style="list-style-type: none"> • Always • Usually • Occasionally • Never 	<ul style="list-style-type: none"> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/>
2.6 What limits the amount of therapy patients receive?	

3. Transfers of Care	
3.1 When do you and your team start to plan discharge?	
<ul style="list-style-type: none"> 8. On admission 9. Within a week of discharge 10. After a month 11. When bed pressures get too high 12. Once recovery is complete 13. Once the patient is no longer responding to rehab 14. Other 	<ul style="list-style-type: none"> a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/> e. <input type="checkbox"/> f. <input type="checkbox"/> g. <input type="checkbox"/>
If other, please state:	

3.2 What do you think are the main causes to delay in discharge?

4. Staff Views (part 1)

We would like target an idea of which aspects of stroke rehabilitation staff value and would really want to maintain and which staff feel are unhelpful or ineffective and would like to lose – the next few questions ask about this.

4.1 Please identify 3 elements of the rehabilitation service within your locality which works well and could/should to other services in Greater Manchester

1.

2.

3.

4.2 Please identify 3 areas of the rehabilitation service within your locality which don't work well or are ineffective or unhelpful and which you feel could be improved.

1.

2.

3.

4.3 How would you change things to overcome these problems?

1.

2.

3.

4.4 What do you feel are the barriers that prevent this change from happening?

1.

2.

3.

5. Increasing Therapy/activity

From our work so far, two major issues have arisen; the amount of therapy patients receive and transfer between services, particularly at discharge. The next questions ask you about these issues and your views on some possible solutions.

5.1 How many days a week do you think patients **should** receive therapy (if they are fit enough to do so)?

- | | | | | |
|--------|--------------------------|----|--------|--------------------------|
| 7 days | <input type="checkbox"/> | e. | 3 days | <input type="checkbox"/> |
| 6 days | <input type="checkbox"/> | f. | 2 days | <input type="checkbox"/> |
| 5 days | <input type="checkbox"/> | g. | 1 day | <input type="checkbox"/> |
| 4 days | <input type="checkbox"/> | | | |

5.2 How much therapy/exercise per day do you think **the most able patients** should be offered?

- | | | | | |
|-----------------|--------------------------|----|-----------|--------------------------|
| • 15-30 minutes | <input type="checkbox"/> | d. | 2hrs-3hrs | <input type="checkbox"/> |
| • 31-45 minutes | <input type="checkbox"/> | e. | 3hrs-4hrs | <input type="checkbox"/> |
| • 45 mins -2hr | <input type="checkbox"/> | f. | >4hrs | <input type="checkbox"/> |

5.3 How many days a week do you think patients could/would/should...

a) engage in therapeutic activity?

- 7 days
- 6 days
- 5 days
- 4 days

- e. 3 days
- f. 2 days
- g. 1 day

b) travel from home to a hospital or health centre (or similar) for treatment?

- 7 days
- 6 days
- 5 days
- 4 days

- e. 3 days
- f. 2 days
- g. 1 day

6. Staff Views (part 2)				
6.1 What are your views on the following? (please tick the response which most closely meets your view)				
	Great Idea, bring it on	OK idea, it's worth a go	Not keen, would rather not	Not in a million years
6 day service to deliver more therapy				
7 day service to deliver more therapy				
Group treatment/therapy sessions				
Rehabilitation assistants delivering treatment in groups or individually				
Patients exercising or practicing activities on their own outside formal treatment sessions				
Patients having personalised timetable which specifies the therapy/activities they will have and when it will happen each day				
Limiting visiting time to evenings and weekends so patients can take part in more rehabilitation activities during the day				
Patients sticking to their usual routine rather than the hospitals e.g. getting up and going to bed at time of their own				
Patients to do their own chores (as able) while in hospital e.g. making beds, getting breakfast, setting the table, making meals/drinks				
In-reach/Out-reach working between hospital and community – where the same staff (mainly therapists) treat the patient in hospital and then continue in the community once discharged				
Extending rehabilitation hours to the evening (e.g. an 8-till-8 service) for example; offering evening MDT/case conferences to encourage family to attend as well as therapy/activities for those who want/can tolerate it				
6.2 What do you think are the advantages and disadvantages of the possible changes outlined above?				
a) Advantages:				

b) Disadvantages

6.3 What do you feel would be the barriers to implementing them in your rehabilitation service?

6.4 How could the barriers be overcome?

Many thanks for completing this questionnaire

Please add any thing else you would like to tell us about the rehabilitation service you or your colleagues deliver and how we could improve it

**When complete please return the questionnaire to
Alison McGovern on Alison.mcgovern@gmccardiacnetwork.nhs.uk
or by post to
Alison at Greater Manchester and Cheshire Cardiac Network,
9th Floor, Regent's House, Heaton Lane, Stockport SK4 1BS**

Appendix M: Covering information sheet for staff questionnaire

Dear Stroke Staff

Having tackled acute and hyper-acute stroke services, the Greater Manchester & Cheshire Cardiac and Stroke Network is starting a project to look at stroke rehabilitation services with a view to re-design them so that national standards are met and best practice is implemented. The project is called ImpReS (Improving Rehabilitation for Stroke) and is led by Dr Sarah Tyson of University of Salford and Alison McGovern from the Greater Manchester and Cheshire Cardiac and Stroke Network.

The first stage is to establish what services are provided already and what patients, their carers and families and clinical staff think of them so that we can identify the gaps that need to be filled and how services need to be re-designed. A vital part of this is to get the views of the staff delivering stroke rehabilitation. So we would be grateful if you could complete this questionnaire about the stroke rehabilitation you provide.

The questions explore your OWN VIEWS on **your own therapy service, not that of the whole team**. We will be obtaining details of the stroke rehabilitation service specification separately (from the stroke co-ordinators) are also surveying stroke patients and carers about their views and perceptions. This questionnaire is an opportunity for you to tell us what you think about the stroke rehabilitation you deliver; how you feel about the re-design and to shape it by identifying the areas we should work on and the areas that we should leave alone.

We are asking about your personal views and opinions and do not seek to analyse individually the therapy you offer. It is NOT a time and motion type study to analyse the service you deliver. The information you give will be confidential and anonymised. It will not be traceable to you, your service or Trust and will not be seen by staff within your Trust. The anonymised information collected through this project may be used for research purposes as part of a Professional Doctorate and disseminated through academic publications. You do not have to complete the questionnaire, it is voluntary.

We wish to obtain the views of staff from all professions, all grades and all areas of rehabilitation, so please encourage your friends and colleagues to complete it too!

**When complete please return the questionnaire to
Alison McGovern on Alison.mcgovern@gmccardiacnetwork.nhs.uk
or by post to**

**Alison at Greater Manchester and Cheshire Cardiac Network, 9th Floor, Regent's House, Heaton Lane,
Stockport SK4 1BS**

Stroke Rehabilitation Commissioners Questionnaire

Name of Organisation:
Name of person completing the form:

Section One	
How do you commission community rehabilitation? <ul style="list-style-type: none"> • PCT Provider Unit • Acute Stroke Tariff • Rehabilitation Tariff • Other 	a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/> d. <input type="checkbox"/>
Who employs your stroke rehabilitation staff? <ul style="list-style-type: none"> • PCT • Acute Trust • Other 	a. <input type="checkbox"/> b. <input type="checkbox"/> c. <input type="checkbox"/>
Is there a formal service specification or contract? Yes* No If yes, please attach	a. <input type="checkbox"/> b. <input type="checkbox"/>

Section Two	
How do you evaluate the effectiveness of stroke rehabilitation services in your area?	
Do you think the co-ordination of care locally is adequate? 15. Yes 16. No Please give a reason for your answer:	a. <input type="checkbox"/> b. <input type="checkbox"/>
What is your view of the current quality stroke rehabilitation services?	

Section Three
What are your three highest priority outcomes for a redesign of stroke services? 1. 2.

3.

Please list up to three changes you would like to see to improve stroke rehabilitation?

1.

2.

3.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE!

When complete please return the questionnaire to

Alison McGovern on Alison.mcgovern@gmccardiacnetwork.nhs.uk

or by post to

**Alison at Greater Manchester and Cheshire Cardiac Network, 9th Floor, Regent's House,
Heaton Lance, Stockport SK4 1BS**

Tel: 0161 426 5912



Improving Rehabilitation in Stroke (Impres)
Questionnaire for stroke commissioners
to establish level of stroke rehabilitation provision

The Greater Manchester Cardiac and Stroke Network was established to develop stroke services across the conurbation, and having started at the beginning of the stroke care pathway with hyper-acute and acute services our efforts are now turning to rehabilitation. One of our objectives is to review the provision of stroke rehabilitation so we can get a baseline picture of the services – to identify areas of good practice and also to identify where there are gaps. The findings will contribute to the recommended model of stroke rehabilitation which will be presented to the network's stroke board later in the year. We will also be surveying staff working in stroke rehabilitation about their opinions of the service they provide and asking patients and carers about their experiences and satisfaction. The results of all these questionnaires and the recommended model of stroke rehabilitation will be presented at an event for all staff later in the year.

We would be grateful if you could complete this questionnaire about the commissioning of stroke rehabilitation services in your locality. If you don't have the information you are asked for, please feel free to contact your colleagues as appropriate.

The information you provide will be held by the Stroke Network, shared within the relevant PCT and disseminated within the network and more broadly regionally and nationally. Any personal data or information will be anonymised so that it is untraceable. The anonymised information collected through this project may be used for research purposes as part of a Professional Doctorate and disseminated through academic publications.

Please complete all the questions and send any relevant documentation needed in support of your answers. Please provide information relating only to services for patients with stroke.

When complete please return the questionnaire to

Alison McGovern on Alison.mcgovern@gmccardiacnetwork.nhs.uk

or by post to

Alison at Greater Manchester and Cheshire Cardiac Network, 9th Floor, Regent's House, Heaton Lance, Stockport SK4 1BS

Tel: 0161 426 5912

Yours faithfully,

Sarah Tyson (Clinical Lead for IMPRES)