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A systematic Knowledge Management model for planning the discharge of hospital patients

A thesis submitted in partial fulfilment of the requirements of the degree of Doctor of Philosophy

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Abstract

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the growth in size, complexity and the number of chronic diseases in the NHS. In addition, there is an increase in demand for high quality care, processes and planning. Effective Discharge Planning (DP) requires practitioners to have appropriate, patient personalised and updated knowledge in order to be able to make informed and holistic decisions about a patients' discharge.

This research examines the role Knowledge Management (KM) plays in planning an effective discharge plan and examines existing ways in which DP is currently carried out, identifies the stakeholders who are involved in the DP process and highlights problem areas requiring further improvement. The research also examines KM models and KM models in healthcare and integrates KM with DP in the form of a KM-based DP model. The development of the model is based on primary research, using the Grounded Theory method on a sample of stakeholders in the DP process in typical NHS hospitals. Through a process of thematic coding to the point of theoretical saturation the primary research builds on the thorough secondary research, applying problem analysis techniques in an innovative way.

The model is intended to highlight the problem areas that require focus and provides a seamless overview allowing healthcare personnel to thoroughly plan the discharge of a patient with the involvement of both patients and carers. By following the guidelines in the model, healthcare personnel, patients and carers will be prompted to identify and implement the relevant factors that make up an effective discharge plan.

The KM-based DP model is validated by the actors involved in planning the discharge (i.e. a sample of healthcare personnel). The doctoral challenge of the research is in the development and validation of an original discharge planning model using an innovative application of the Grounded Theory method. The model has implications for further academic research and for a controlled implementation in practice.

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Declaration

I declare that this thesis conforms to the University research regulations and represents my own work.

The research findings are documented honestly and fairly, and the work attributed to other researchers has been acknowledged and referenced.

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Chapter 1. Research Introduction

1.0 Background to the research

Reports in the popular press in the UK were the initial motivation for the research. These reports, coupled with anecdotal evidence and an opportunity to probe the problem within the National Health Service (NHS), led to the investigation upon which this thesis is based. When a patient leaves an acute hospital and returns home or to an after care facility such as a nursing home, a patient is said to be discharged (Johnson & Nile, 2011). Therefore, planning the discharge of a patient is important, as inadequate discharge planning (DP) can result in problems such as bed blocking, increased emergency readmissions, delayed discharge and long waiting lists. The invariable consequences of inadequate DP must be significantly affecting society for it to receive such repeated negative attention in the media. The issue has been attributed to DP, because it has become apparent that the problems described in reports by the popular press as seen in Section 1.5 and anecdotal evidence lie in inadequate DP for several reasons, all of which will be examined in this research. The academic investigation coupled with primary research in the NHS will determine if the reports and dramatic figures as depicted in the media are as severe, if it is a mere embellishment or perhaps even larger than depicted.

An essential component in quality healthcare is the convalescence of a patient and DP plays a key factor in a patient's convalescence (Shepperd et al., 2010). Various factors play instrumental roles in DP and involve patients being transferred from one care environment to another. Careful planning and a clear framework are vital to the smooth flow of patient care upon arrival to the end of post treatment, along with ensuring the efficient use of hospital resources (NHS Institute for Innovation and Improvement, 2010). A preliminary review of the DP guidelines by the Department of Health (DH) and press reports indicated that a satisfactory process by which DP is carried out was missing from actual procedures. DP guidelines will be further investigated in Chapter 3. A key focus of this investigation was to carry out a comparison of the DP guidelines against the experiences of patients and healthcare personnel, i.e. the people directly involved in the DP process.

The initial investigation of the press reports, the anecdotal evidence and the literature from the NHS about DP resulted in the researcher being presented with an opportunity to conduct research for a Clinical Portal Project in The Christie NHS Foundation Trust ('The Christie'), Manchester. The evolution of the research project led the pathway to further contacts being established in another trust, (i.e. the South Staffordshire and Shropshire Healthcare Trust) and deeper insights being gained about DP.

1.1 The importance of Discharge Planning

Discharge of a patient can be considered the beginning of convalescence, it is a process and not an isolated event (Mudge, 2003) and has a major impact on patients, their families and the carers involved (Mudge, 2003; NHS Institute for Innovation and Improvement, 2010; Shepperd et al., 2010; Johnson & Nile, 2011). It even has implications for resources in the healthcare, social care and other support services (Johnson & Nile, 2011; Heath et al., 2010; Wong et al., 2011; NHS Institute for Innovation and Improvement, 2010; Mudge, 2003).

DP facilitates patients moving from one healthcare setting to another, or to their home. It begins on admission and is a multidisciplinary process involving physicians, nurses, social workers, and possibly other health professionals (Sg2 Healthcare Intelligence, 2011; NHS Institute for Innovation and Improvement, 2010; Institute for Healthcare Improvement, 2011). The aim of DP is to enhance continuity of care and it can have significant implications for a patient’s well-being and recovery, the effectiveness of hospital management processes and the efficient use of medical resources. The complexity of the discharge process implies that careful planning is needed to make the process effective (Shepperd et al., 2010; Mudge, 2003).

1.2 Obstacles to effective Discharge Planning

DP involves coordinating inter-related factors, to produce an outcome that is in the best interest of both the patient and hospital. DP is critical to ensuring rapid, safe and smooth transition of an inpatient from hospital to another care environment (Mudge, 2003; Shepperd et al., 2010; Institute for Healthcare Improvement, 2011; NHS Institute for Innovation and Improvement, 2010). In consequence, any effective and usable DP system needs to address the complex needs of patients, their families and the health care system for optimum functioning (Institute for Healthcare Improvement, 2011; NHS Institute for Innovation and Improvement, 2010). Some of the factors which require coordinating include those seen in Figure1, which appear to be the most apparent. Further factors that need to be considered for DP will be investigated in this research.

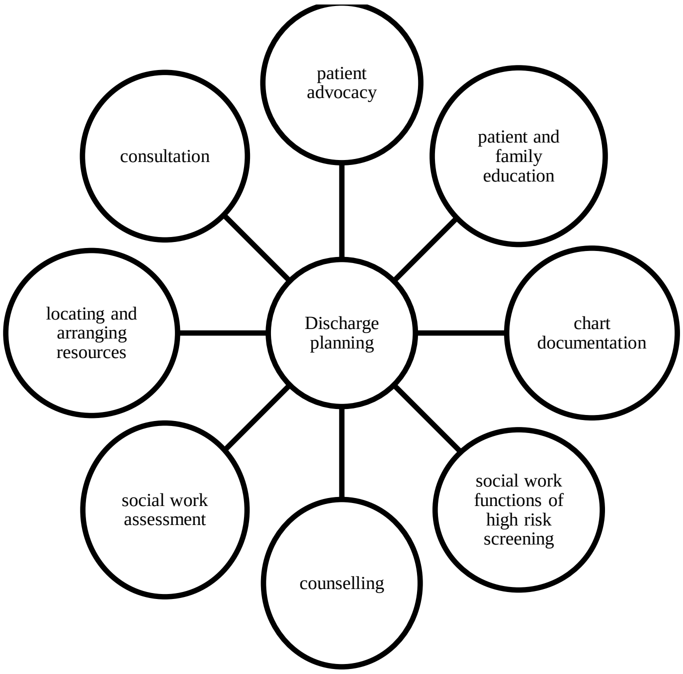


Figure 1. Some factors to co-ordinate for effective discharge planning

Source: (Discharge Planning and ALC Policy Task Team, 2006)

It is evident from the factors in Figure 1 that DP is a process requiring the involvement of the following stakeholders when a patient is to be discharge or while admitted in hospital:

- Patients and their families. Their involvement and 'education' about the diagnosis is important in order to ensure a smooth transition from hospital to home or to a care environment;
- social workers and their assessment;
- Healthcare personnel, their consultation, the outcome of their consultation and documentation.

The current reports about the consequences of DP do not reflect a smooth coordination of the factors in Figure 1. The current situation as depicted in the popular press and reports by the NHS indicates a fragmentation in processes with regards to DP due to reasons that will be described in the next few paragraphs. These reasons will be further investigated in the research to explore their severity and to examine other reasons that may emerge.

1.2.1 Quantitative measures e.g. Targets as an obstacle to effective discharge planning

The NHS in the UK is faced with a problem of managing patient discharge whilst having to achieve waiting time, treatment time and bed targets (Boseley, 2011). Patient discharge is currently driven by quantitative measures, where achieving targets such as those described previously are prioritised while the patient's quality of care is compromised (Metro, 2012).

The implication of being target driven rather than knowledge driven is that the healthcare system fails to consider all factors that result in the effective recovery of a patient post treatment (Institute for Healthcare Improvement, 2011; NHS Institute for Innovation and Improvement, 2010; Discharge Planning and ALC Policy Task Team, 2006). It focuses on accomplishing and achieving targets resulting in doctors and nurses compromising patient safety and well-being. Doctors have been reported in the popular press to make quick and rash decisions about patients just to get the 'clock to stop ticking' (Metro, 2012) resulting in deteriorating trust between doctors and patients. Doctors find themselves torn between meeting targets and providing their sick patients with the best treatment (Campbell & Ramesh, 2011). These claims in various news media have been reaffirmed by Andrew Lansley the Secretary of State for Health in the UK who in December 2011 stated that:

> '*The NHS is full of processes and targets, of performance-management and tariffs. Originally, all designed to deliver better patient care. But somewhere along the line, they gained a momentum of their own, increasingly divorced from the patients who should have been at their centre*'
>
> (Department of Health: Media Centre, 2011)

1.2.2 Mismanagement of resources within the healthcare setting

Hospitals suffer from the inability to deliver timely care, and performance efficiency (Keeling & Officer, 2000; Eardley & Czerwinski, 2007). There is a severe mismanagement of resources and time as different teams operating in the operating theatre; ward and community often repeat the same practises and develop new methods repeatedly, rather than sharing what they know via reliable national networks so that they can learn from each other (Dwivedi et al., 2001). This is sometimes termed a silo mentality[1](Umble & Umble, 2006). Paul Batalden, Director of Healthcare Improvement and leadership development at Dartmouth Medical School is quoted as saying, 'People in medical training are prepared to work in a silo, but much of their work must be done outside their silos [2]. Due to an ingrained silo mentality, they do not understand that they are essentially interdependent and connected with all other parts of the medical system' (Umble *et al.*, 2005).

[1.] *Silo Mentality - A mind-set present in some companies when certain departments or sectors do not wish to share information with other functions or depatrments in the same company.*

[2] *Silo – Tall cylinders, which implies that each department in an organization stands alone, with internal communication only and, not interacting with any of the other departmental silos.*

The problem of hospital units performing as silos in relation to DP, apart from their inability to exchange ‘best practise’ (Umble *et al.*, 2005) are the detrimental effects on patient treatment e.g. double dosing of medication at admission and discharge (Umble *et al.*, 2005) and ‘bed blocking’, delayed discharge and increased emergency readmissions (Kiely & Green, 2011). Reasons such as overdue patient assessments, long waits for social care arrangements, and funding dispute, amongst many others can cause delays in discharge which results in precious beds being used up, which could potentially be freed up for the mounting queue of patients requiring the beds (Belfast Telegrapgh, 2014).

There are also management implications for instance, financial strains and procedural ineffectiveness and effects on staff efficiency for instance the employees find themselves overwhelmed with bureaucracy (Stratton & Knight, 2010).

1.3 Research motivation

There is an urgent call for an efficient DP process, to manage scarce healthcare resources effectively (Copper, 2007; Pandor et al., 2013). Inadequate DP can result in both increased emergency readmissions and delayed discharge, which may have severe implications for the hospitals finance, time and resources and can have equally severe implications for patients' morale and well-being (Godden et al., 2009). Innovative discharge plans may reduce ambulance call-outs by over 900,000 and hospital bed days by over 10.2 million. This could deliver estimated savings of £2.2 billion which could be reinvested in frontline patient care and help meet the rising demands of the NHS (Health, 2011), as it has been estimated that poor discharge planning which results in delayed discharge can cost the NHS as much as up to £100 million each year (Nixey, 2014).

A preliminary review of the literature on DP frameworks and methodologies indicated that a key component seems to be missing. The NHS appears to be a ‘gold mine’ of knowledge, with large amounts of data and information being input and output on a daily basis. However, there was no apparent satisfactory DP framework or methodology that takes the valuable knowledge and management of knowledge contained into consideration. The NHS like many organisations has a lot of data and information assets, but accessing this information in order to make a decision seems to be a challenge due to its fragmented nature.

This can be due to departmental silos and ‘islands of information’ (Wickramasinghe, n.d.) that prevent the efficient flow of information between departments in an organisation (The

Economist Intelligence Unit, 2005). Very little knowledge is extracted from these silos, leading to the foundations of this study, and the proposal of a Knowledge Management (KM) model that provides an integrated approach to identifying, managing and sharing information in order to produce an appropriate patient discharge pathway. KM forms the bridge between these isolated islands of knowledge (Dwivedi et al., 2002).

KM has often been studied in the field of Healthcare (Wickramasinghe & Mills, 2001; Wickramasinghe, 2006; Dwivedi et al., 2002; Bali et al., 2002; Eardley & Czerwinski, 2007). However its essence seems to be lacking in DP i.e. a patient's convalescence especially in times of target driven DP. A variety of other interconnected reasons too exist, resulting in inadequate DP. Meeting prescribed targets is just one of the causes that results in a routine decision being made when discharging a patient. The web of interconnected reasons for inadequate discharge will be further examined in this study.

1.4 The current situation with regard to Discharge Planning

According to Johnson & Nile (2010) DP should commence as early as possible in order to facilitate a smooth discharge process. Several attempts have been made at improving DP, and reasonable improvements have been identified. Several of these methods include:

- A clinical management plan where an expected date of discharge is predicted based on actual performance in the ward or, on benchmarking information from past cases (Heath et al., 2010);
- multidisciplinary teams making a decision based on experience during a meeting to decide on DP (NHS Institute for Innovation and Improvement, 2010);
- a bed management system which stores information on beds occupied and a weekly meeting that decides the discharge date for patients (NHS Institue for Innovation and Improvement, 2010).

The Department of Health (DH) has prescribed recommended guidelines for discharging a patient, and these guidelines will be examined in Chapter 3. In Chapter 5, which guidelines are prescribed by the DH is followed by some NHS trusts will be analysed. A rough discharge plan is currently drafted for patients upon entry to hospital according to their diagnosis, and a tentative discharge date provided. Changes are made over the course of the patient's stay and records are manually updated by nurses upon instruction by doctors. This results in confusion and sometimes disagreement on discharge dates by different doctors treating the patient for different symptoms, and nurses may disagree especially when a change in shift occurs

(Williams et al, 2010). Patient DP therefore requires looking at the system as a whole and not as isolated units or silos. Having patient information available for viewing at one location is vital to being able to extract all the information necessary from one source thus being able to improve overall patient flow (Institute for Healthcare Improvement, 2011). The issues highlighted have resulted in the following research question.

1.5 Research Question, Aim, Objectives and Deliverables

1.5.1 Research Question

The background to the problem of inadequate discharge planning prompts the following research question:

> ***'Would the increased capture and revised use of existing knowledge within the NHS in the form of a KM model be sufficient to make informed decisions with regard to DP at an early stage in a patient's treatment journey reduce excessive readmissions, delayed or premature discharge, control excessive costs and break down functional silos in the UK NHS?'***

1.5.2 Aim

The research question will be answered by the following aim, which is to investigate the problems caused by the lack of DP in the NHS and the role of KM and a KM model in reducing the problems and to develop and validate a KM model that will use a variety of knowledge sources, allowing clinical and medical staff to produce an improved discharge plan, thus reducing the problems that result from inadequate DP.

1.5.3 Objectives

This overall aim will be met when the following research objectives have been achieved:

- To conduct secondary research into the domain of DP, the issues related to it and its limitations in the form of a literature review.
- To conduct secondary research into the domain of KM, existing KM frameworks/models and KM frameworks/models in healthcare, in the form of a literature review.
- To identify NHS trusts to carry out primary research, in order to confirm the factors contributing to inadequate DP.

- To identify a link between KM and DP, and to understand the role of KM in reducing the limitations of DP.
- To investigate KM frameworks and models related to DP.
- To carry out primary research in NHS trusts, in order to investigate factors contributing to inadequate DP and the effect of inadequate DP on patients, caregivers, hospital performance, and on costs and resources.
- To model the current DP process and identify the problems in the process.
- To design and develop a new KM model based on findings from the secondary and primary research.
- To identify IT tools that are best suited to aid in a holistic DP process.
- To validate the model with a panel of experts for use in various healthcare settings.
- To evaluate the success of the research project as a learning experience and to assess its potential for future DP study.
- To document the findings in the form of a thesis.

1.5.4 Deliverables

The foregoing objectives will be satisfied when the following research deliverables are produced, each being linked to the achievement of an objective:

- A literature review into DP, the way in which it is currently carried out along with its limitations.
- A literature review of KM frameworks/models, and frameworks/models that are closely related to DP.
- A model of the current DP process along with the identification of the problems.
- A KM model encompassing DP and information sharing for the perusal of a healthcare setting in their decision making process.
- Identification of IT tools that best support and compatible with the model such as a decision support system for DP and a clinical portal for information sharing.

- Validation of the framework with a team of practitioners in the participating NHS Trusts i.e. the Christie NHS Foundation Trust (‘The Christie’) and the South Staffordshire and Shropshire Healthcare Trust (‘SSSHT’).
- A critical evaluation of the framework that will be included in the thesis.

1.6 The current problems of discharge in the NHS as reported in the popular media

The idea behind this research began with negative reports in the popular media, giving alarming statics and cases of dysfunctionality in patient discharge. The dilemmas with the discharge of patients in the NHS caught the attention of the popular press rather frequently between 2010 and 2012, while recognising it’s reporting in the subsequent years as well. The limitations of reports by the popular press are recognised, but the reports will be used as indicators of the problem, which will be examined with rigour by further research. Quantitative measures such as the targets currently determine a patient’s discharge process as is seen in some of the reports summarised in Table 1. Targets are given priority while a patient’s quality of care is compromised (Surrey and Sussex Healthcare NHS Trust, 2012) the implication being target-driven that the healthcare system fails to consider the factors that result in the effective recovery of a patient after discharge (Bali et al., 2002).

Hospitals focus on achieving targets, resulting in doctors and nurses compromising patient safety and wellbeing. The press reports also highlight the financial burden placed on the NHS due to delayed discharge and emergency readmissions, claiming that if it was better organised the NHS could make savings of about £500 million per year. They also highlight that delays in discharge occur due to poor communication between departments in the NHS and with external care agencies, and also due to poor coordination of resources in the NHS. This appears to confirm the existence of a ‘silo mentality’ described in Section 1.2.3. The reports indicate a haphazard nature in which the discharge of a patient from hospital is currently carried out, with minimal involvement of the patient and carer, resulting in over 660,000 patients being readmitted in 2010. This appears to reinforce the inefficiencies highlighted in Section 1.2.1.

1.7 Theoretical underpinnings

Healthcare can be considered as a system, with a collection of independent but interrelated elements or components organised in a meaningful way in order to accomplish an overall goal (Gordon, Plamping, & Pratt, 2005). Just like any other system, a hospital is made up of subsystems such as the inputs, processes and outputs all of which are a component of a larger system i.e. the healthcare system. An understanding of healthcare subsystems is important in gaining a deeper insight into their components, the relationship between the components, the boundaries of the system and how the system deals with and adapts to changes within the organisation (Ashmos & Huber, 1987).

Press	**Report**
The Guardian, (Boseley, 2011)	The NHS UK is faced with a problem of managing patient discharge whilst having to meet waiting time, treatment time and bed targets, reports.
The Guardian, (Campbell & Ramesh, 2011)	Doctors find themselves torn between meeting targets or providing their sick patients with the best treatment.
The Guardian, (Ramesh, 2011)	An approximate £250m had been spent on "delayed discharges" since August 2010, amounting to £550,000 a day.
The Guardian, (Ramesh, 2011)	It was reported by the NHS confederation that one in four patients are occupying beds when they could be recovering at home. The consequences of this include longer waiting lists, loss of confidence in the NHS and escalating expenses, amongst others. Mike Farrar the Chief Executive of the NHS Confederation said that these problems are a result of an '*outdated hospital model of care*'.
The Metro, (Metro, 2012)	Doctors have to make quick and rash decisions about patients just to 'get the clock to stop ticking' resulting in deteriorating trust between doctors and patients.
BBC News, (Roberts, 2010)	The number of patients readmitted through Accident and Emergency departments within 28 days of being discharged has risen steadily from 359,719 in 1998 to 546,354 in 2008. The quality of patient care is adversely affected and decisions currently made are informed by targets rather than being informed by knowledge of the patient.
BBC News, (Triggle, 2012)	If it was better organised the NHS could reduce the number of overnight stays by 2.3 million freeing up 7,000 beds, saving the NHS nearly £500m a year. The current problems existing due to a breakdown in communication.
The Telegraph, (Winnett, 2011)	In 2010 more than 660,000 people were brought back within 28 days of leaving, statistics show, sparking allegations that patients are being "hurried through the system" so the NHS can meet waiting-list targets.
The Telegraph, (Adams, 2011)	Many older patients face the brunt of the delayed discharge.
The Telegraph, (Ross, 2011)	Due to the lack of communication between the NHS and the social care homes, older patients are forced to

	stay in hospital. This causes longer waiting lists for other patients who are seeking urgent treatment.
Nursing Times.net (The Press Association, 2011)	Delay in discharge are not good for patients and waste valuable resources.
Bromsgrove Standard (Dipple, 2014)	Analysis of figures released by NHS England show in the last three years more than £6.3million has been lost because of an inability to move patients out of hospital once they no longer need specialist care to a more appropriate place.
The Telegraph (Belfast Telegrapgh, 2014)	The number of days lost to "bed-blockers" has been increasing since the summer leading to new records in August and September. It represents a rise of around 20% compared to October 2013 and 35% compared to 2012. "Bed-blocking" in October is believed to have cost the NHS around £25 million.

Table 1. A summary of press reports of the problems faced by DP in the NHS

Systems theory therefore provides an understanding and visualisation of the current discharge handling process, the communication that currently takes place within the organisation, the feedback loops that currently exist, technologies currently used and the general framework that is in operation in handling a patient's pathway upon admission (Gordon, Plamping, & Pratt, 2005). By gaining an understanding of the various steps that currently take place, knowledge of the current processes is accumulated and ways to improve can then be implemented.

Recent years have witnessed advances in Informatics i.e. the use of information and communications technology or ICT to increase productivity and efficiency in healthcare (Bali & Dwivedi, 2007) and 'big data' (i.e. large amounts of stored data) may be of help to decision makers in practice. Data when stored provides very little functionality to an organisation as it is not able to provide instructions to the organisation on what to do. Therefore the extraction of knowledge from the 'big data' can generate insights that can result in efficiences (Laff, 2014; RevSpring, 2014). Knowledge, on the other hand, is a collation of experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information (Davenport & Prusack, 2000) in order to make better decisions. The NHS is also currently faced with the problem of 'islands' of data and information due the formation of data to support functional silos (Eardley & Czerwinski, 2007). Very little knowledge is extracted from these silos, leading to the aim of this study, a KM model that will provide an integrated approach to identifying, managing and sharing the 'islands of knowledge' in order to identify an appropriate patient discharge pathway. KM therefor forms the bridge between these isolated islands of knowledge to make a more ‘holistic’ decision (Bali & Dwivedi, 2007).

KM is about disseminating the right knowledge to the right people at the right time in order to make informed decisions (Petrash, 1996). Two forms of knowledge exist, namely tacit and explicit knowledge (Holsapple & Joshi, 1999; Eardley & Czerwinski, 2007; Bali & Naguib, 2003; Wickramasinghe, 2006; Abidi, 2008; Nonaka & Lewin, 1994). Tacit knowledge is the kind of informal knowledge and hard-to-pin-down skills. It is the ‘know-how’ of persons developed, over years of experience, while explicit knowledge is expressed as words or numbers, and can be easily codified, communicated and shared in several forms (Takeuchi, 2006, Nonaka, 2007, Eardley & Czerwinski, 2007). Making the tacit knowledge explicit allows for an organisation to capture the expertise of particular individuals, thus expanding the ‘organisational memory’ but it also enhances decision-making processes (Wickramasinghe, 2006). KM in this sense is defined as the way in which multidisciplinary teams, (in this case working in healthcare) harvest the personal expertise that is essential to patient safety, learn from it, adapt it to local situations and individual patients, and distribute the knowledge that is gained via reliable networks to the people caring for the patients so that they can use it to improve the quality of care delivered (NHS England, 2014; NHS Institute for Innovation and Improvement, 2010). A thorough investigation into KM, practices, frameworks and models will be presented in Chapter 4.

In an organisation, the major challenge is to create a KM system that can ‘acquire, conserve, organise, retrieve, display and distribute what is known today in a manner that informs and educates, facilitates the discovery of new knowledge and contributes to the benefit of an organisation’ (Wyatt, 2001). KM can therefore be looked on as an integrating practice that offers a framework for balancing the many processes, technologies and approaches that can ‘provide value’ to patient care (Newman & Conrad, 1999). It ties them together into a seamless whole by aligning organisational information and practices with the organisation’s strategic objectives, fits into employees’ daily work activities, manages content effectively, and considers the potential business opportunities associated with sharing knowledge with suppliers and customers (Fontaine & Lesser, 2002). As a result of this, KM better enables individuals, systems and organisations to exhibit ‘intelligent behaviour’ (in the true sense of the word) in a dynamic and agile environment (Newman & Conrad, 1999).

With regards to DP, various departments are involved in the decision-making process (Kripalani et al., 2007). Therefore the ability of KM to enhance collaboration and decision-making proves to be advantageous, as having the right information and knowledge is important for efficient DP. The ability of KM to seamlessly align an organisation's information, practices and people encourages informed decision-making, and in the case of the NHS is crucial for aligning the objectives and expectations of the 'stakeholders' of DP (i.e. the patients, carers and healthcare personnel) with the practices of DP. The use of ICT where needed, will then allow for more efficient DP processes.

KM will set a foundation for allowing the current knowledge-rich resources in the NHS (which are currently under-exploited) to be used effectively in order to make more informed decisions regarding DP and to overcome the current obstacles to DP, namely the focus on quantitative measures, the organisational silos, and the poor coordination of resources in the NHS (Eardley & Czerwinski, 2007). KM will allow for the fragmented processes, as it will identify the problematic areas, and provide knowledge-based solutions that will work to the benefit of all the 'stakeholders' in the DP process.

1.8 Research Challenge

The main research challenge arises from being able to differentiate the main problem to what is perceived in the news media, along with the way in which decision making is currently made in the NHS with regards to DP and to carry out the primary research that will integrate the various functions.

1.8.1 The challenge in working in a real world situation

Various media sources report the problem currently associated with inadequate DP in the NHS in the UK (see Table 1) and being able to collate all these sources and tally them with the real situation poses a considerable research challenge. This is as due to the varying opinions expressed in the media, as there seems to be a conflict between the items in the news and the 'official version' of reality (note that many of the news items are based on official government statements and statistics. Therefore the challenges in working in the real world situation are to be able to differentiate the real problem of inadequate DP from the perceived problem as expressed in the media. These conflicts in opinions and views thus prompted the primary research in the academic literature and in hospital practice in order to gain more rigorous and deeper understanding of the problem area and to be able to identify the root cause of the problem as well as its effects.

1.8.2 The challenge in making sense of the presented data

Data presented in the real world situation (i.e. in the NHS UK), might not necessarily be the data that is required to identify the root cause of the problem. Thus this poses a challenge in having to sift through the data presented, make sense of it and be able to identify if the data presented will suffice to monitor DP and the problems that stem from poor DP. The right data is vital to the decision-making process of a specific problem, and if in the case of DP data such as the support a patient gets after leaving hospital is not collected, this would hinder the accuracy of the decision-making process. This is as surely if the data presented spans information up to a patients discharge, there is not sufficient data present to predict the likelihood of a patient being readmitted. In other words, there is a need to combine KM theory with DP practice.

1.8.3 The challenge of combining theory with practice

KM theories will be examined in the research, such as Nonaka and Takeuchi's Theory of Organisational Knowledge (Nonaka, 2007a) and various other leading works in the field of KM in order to determine if KM theories can be applied to the decision-making process in the 'real world' in relation to DP. The challenge is in determining if the existing KM theories and their current applications in the real world (particularly in the field of healthcare and DP) are able to provide assistance in making critical information available in a timely and consistent manner (i.e. 'the right knowledge for the right person in the right place at the right time'). The challenge will be to determine if the theories encourage the perusal of the information that currently exists in order to have a substantial impact on overcoming the problems of DP and improving the DP process in a typical NHS hospital.

1.8.4 The challenge of producing a model that can be validated in a real world scenario

As the current culture in the NHS is a very target-driven culture, the decisions concerning DP tend to be made from a quantitative view point, as are many decisions within healthcare. For instance, the number of patients on a waiting list for a particular type of operation (and therefore the demand for beds in a recovery ward), the number of weeks a patient has been on a waiting list (and therefore the priority given to the patient) are often the information used when planning to discharge a patient. There is a case for saying, however, that a typical patient's recovery process needs to be approached qualitatively as patients are individuals and have different emotions and responses. It therefore requires knowing a patient at a personal close level, estimating his or her response to treatment and recovery and being able to make decisions based on prior knowledge of his or her background and circumstances. Having sufficient knowledge about a patient is therefore vital for making comprehensive coordinated DP (Mistiaen et al., 2007). The decisions made should focus on the needs of the patients which require a pragmatic approach rather than the current positivist approach to DP that is suggested in the literature. A pragmatic approach is where decisions are made based on the specific problem in hand (i.e. in this case the particular problem the patient is facing). It is also pluralistic, meaning that it looks into a variety of factors and is orientated towards real world practice and a more subjective and holistic view of the problem. All these factors are important in the personalisation of DP and in making informed decisions about patient progress. The positivist approach, however, is a more systematic approach that looks at facts and theories to make decisions.

The challenge is therefore that of producing a model that recognises both quantitative and qualitative aspects of DP and in relating the model to a healthcare environment that is traditionally driven by a positivist, target-driven regime. There is also the challenge of being able to test or validate the model. It would require a great deal of time and would need access to members of the NHS in order to examine the model in practice in order to determine its usability and the time constraints on the research would not allow this to be done. In any case, the ethical implications of ‘real world’ validation (e.g. testing live) in this application are clearly impractical. There remains the option of qualitative validation by a ‘panel of experts’, a method that has been used with success in previous doctoral research. Therefore a panel of experts from the NHS, who individually deal with DP on a regular basis (a subset of those who have taken part in the analysis phase) is used to evaluate the efficiency and predicted usability of the model in a scenario or case study environment.

1.9 The research process

It appears that there is no one single explanation of the reason for inadequate DP in the NHS. At first inspection is apparent that a variety of factors exist when dealing with DP and in order to facilitate the consideration of all these factors an abductive research approach is chosen for this research. The abductive approach moves back and forth between induction and deduction, converting observations into theories and then assesses the theories through actions and vice versa (Morgan, 2007). The advantage of the abductive approach is that it allows for alternative explanations and measures to determine the design of the personalised DP model, rather than a single very structured design. This currently is one of the problems that result in inadequate DP, where the area of focus is on singular (i.e. the quantitative) measures, in practice overlooking the qualitative measures. According to Reichertz (1995) and Morgan (2007) abduction allows for quantitative and qualitative methods to be combined sequentially, where the inductive results from the qualitative approach can serve as inputs to the deductive goals of the quantitative approach and *vice versa*. The abductive approach therefore will allow for the solution of problems (i.e. problems with regards to DP) in a progressive and practical way (Reichertz, 1995). In this research the context of the problem (i.e. inadequate DP) first needs to be understood, in order to design and determine the KM-based model that will best aid in making more informed decisions, hence the choice of the abductive approach for use in this research.

1.9.1 Research strategy

The research strategies that most closely meet the needs of this research (i.e. to combine the quantitative and qualitative approaches within an abductive framework) are Action Research (AR) and Grounded Theory (GT). AR was defined by Susman & Evered, (1978), 'AR aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework.' The wider purpose of AR is to contribute through the practical knowledge produced by the research to the increased well-being of people and communities and to a more sustainable relationship (Hope, 2001, Johansson & Lindhult, 2008). In other words, it is a mode of research that involves the researcher fully in the research domain in order to expedite and optimise the benefits produced. This would appear to recommend it for use in this research, but due to the previously stated time constraints and ethical implications, AR is felt not to be suitable, as implementing the KM model in the hospital and observing the results would be a very lengthy project and would require actual patients to be subject to the process, which does not abide by the code of ethics of this research.

GT is suitable for research where no suitable theory exists and therefore it is intended for a new theory to be formed (Glaser & Strauss, 1967) upon which the subsequent research may be based. GT is also very suitable for predicting and explaining behaviour (as in the case of decision-making in DP) and building theory from it (Saunders et al., 2009). KM is not one single discipline, but rather, it is an integration of numerous endeavours and fields of study. KM is a discipline that seeks to improve the performance of individuals and organisations by maintaining and exploiting the present and future value of an organisation's knowledge assets. This has resonance with the situation with regard to DP, which is a knowledge-intensive activity. In addition, KM systems encompass both human and automated activities and their associated artefacts (Newman & Conrad, 1999). It therefore is not a theory but is a set of frameworks that aid an organisation or system. It is contended (following the literature search) that KM lacks a generally-agreed theoretical basis (i.e. "Theory with a capital 'T'") and so for the purposes of this research GT is the most suitable method. Therefore, it is intended to develop a theory (i.e. "theory with a small't'") based on the evaluation of the existing KM frameworks for the purpose of DP. GT will therefore be researched in more detail during the course of this study. It is known at the outset that GT collects data and bases a theory upon the data collected through a process of coding, in this research data and knowledge too will be collected in order to allow for a theory to be determined.

1.9.2 Research choice

Both quantitative and qualitative data will be collected either simultaneously or sequentially. Using both data collection techniques will serve useful, as it will provide a better opportunity to answer the research question, by allowing different methods for different purposes in the study, thus addressing all the issues related to the research thoroughly. The development of the KM model for DP would require the use of both qualitative and quantitative techniques to ensure that all the factors that contribute to DP are factored in and that the current gaps that exist due to an increasingly quantitative approach are filled. By implementing both techniques it is hoped that a holistic view is taken into consideration when the DP process is carried out. The secondary research provides the direction in which to design the primary research and the primary research results along with the findings from the secondary research contribute to the development of the KM model.

1.9.3 Data collection techniques

Several techniques have been implemented and will be implemented in this study. Data will be collected in the form of:

- Questionnaires;
- Observations;
- Interviews;

- Email correspondence;
- Focus Groups.

1.9.4 A three staged approach to the development of the KM Model for DP

The research adopts a three staged approach to developing the KM model for DP, which can be seen in Figure 2. The first stage (of secondary research) involves the analysis of the academic literature about DP and legislative literature published by the NHS in which the current situation with regard to DP and an analysis of existing KM and KM frameworks in the literature. The initial of primary research stage involves diagnosing the problems currently posed by inadequate DP in acute care and its effects on patients and on the care system. The way in which DP is currently carried out in the NHS and how much of a patient's personal information is collected and used in the decision making is examined. The resulting knowledge is important to being able to design a model that is able to make informed personalised decisions when planning discharge for a patient while ensuring the sharing of the right information, at the right time to the right people. The roles and responsibilities of the people involved in the DP process are mapped out here, in order to have a clear indication of who is involved and what is their role in DP. The actions to be executed are planned in this phase. Identifying these roles and responsibilities allows the researcher to determine what they contribute currently to DP and to identify 'gaps' in the sharing of knowledge, as currently there is a perceived lack of shared knowledge between the different departments involved in DP (Kiely & Green, 2011a).

A literature search into KM models and frameworks, KM in healthcare and a feature analysis of existing KM frameworks is carried out. KM Frameworks in healthcare and supporting technologies that can aid the process such as the use of clinical portals and decision support systems are studied. The components of the KM model for DP are identified by acquiring the views of the people involved in the DP process, (i.e. the healthcare personnel such as doctors, nurses and administrative staff), along with the patients and carers. The views of administrative staff are collected through a process mapping of admission and DP sessions held within the SSSHT. To assess the information needs of doctors, a questionnaire is distributed on-line to doctors. The questionnaire forms part of a bigger project, the Clinical Portal Project that was carried out in the Christie NHS Trust.

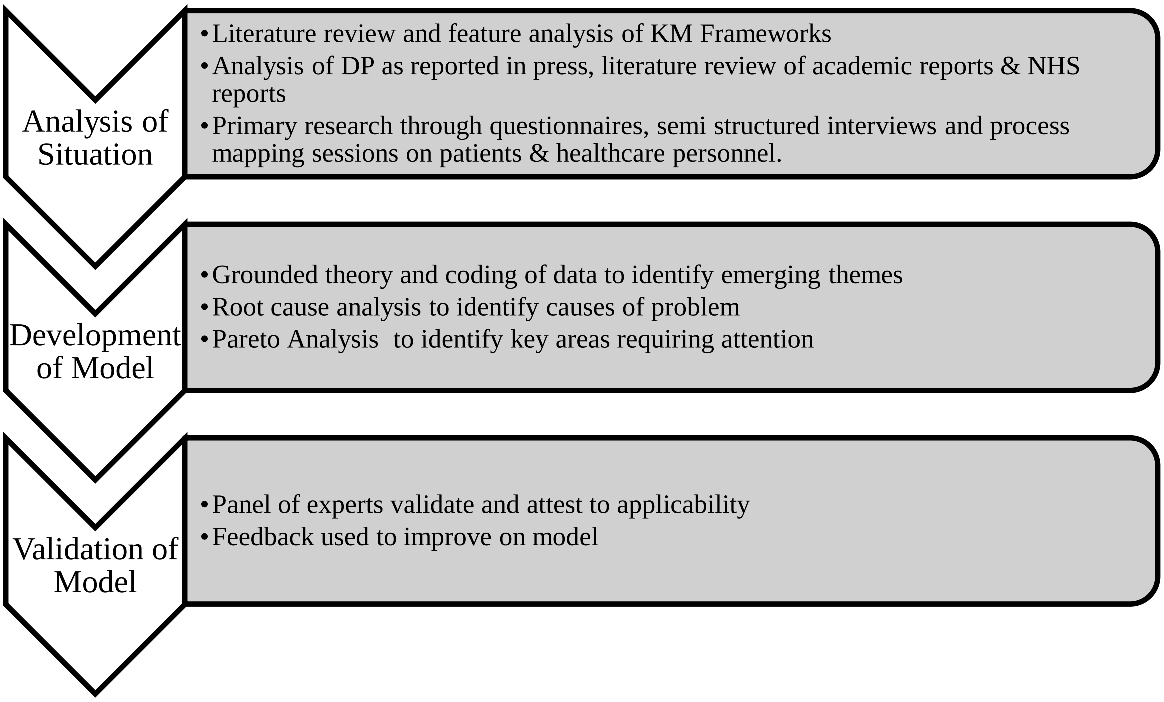


Figure 2. A three-staged approach to developing a KM Model for DP in the UK NHS.

The analysis of the situation leads to the second stage, which is the development of the model, where the findings of the literature review and the primary research provides the basis for identifying the key areas of the problem area on which to focus. The current problems, the people involved in them and the gaps in knowledge in the existing system are tied together and are taken into consideration when designing the innovative KM model. Using the chosen method of Grounded Theory (GT), codes are identified from the primary research and literature search, then are coded into categories and a root cause analysis (RCA) is carried out. The RCA is further supplemented by a Pareto analysis in order to identify the key themes that require special attention with relation to DP. The results obtained are then used to develop the KM model for DP. The model is not only based on the knowledge of the way discharge was carried out previously with other patients (i.e. the 'as-is' state) but also on knowing how the patient needs to be treated so that a discharge plan that specific to that patient (i.e. the 'to-be' state) can be determined. The KM model will therefore emphasise the need for personalisation and will allow the personalised sharing of specific knowledge is specific cases by the different people involved in the DP process, which can potentially improve the decision-making process significantly (Susman & Evered, 1978).

Once the model is designed and developed it is presented to a panel of healthcare experts (i.e. doctors, nurses and managers) and patients who will evaluate its potential usability and its effectiveness in being able to be implemented and produce effective results in the NHS setting. The model is compared to existing DP methods, in order to ensure that the current gaps (as identified in the diagnosis phase) have been 'filled'. The results obtained from the panel of experts and from the comparison of DP methods are fed back into the research and the model is re-evaluated based on the feedback obtained. When this has been completed, the next stage is to reflect on the experience of the research and to record the lessons learnt in relation to the various phases.

1.9.5 Sample population

The data used in the proposed research is based on the information gathered from healthcare personnel in The Christie NHS Foundation Trust ('the Christie') in Manchester and The South Staffordshire and Shropshire Hospital Trust (SSSHT) with regards to current standard modes of information sharing and current DP methods. This includes information gathered through both quantitative and qualitative methods such as questionnaires, interviews, and group discussions. Both the Christie and SSSHT provided the researcher with the opportunity to carry out research on their premises three days a week in order to make observations such as how DP is carried out, the time taken to discharge patients, the time taken to develop a complete discharge plan for a patient and after-care organisation and other such observations.

1.10 Expected outcome

The KM model is the expected outcome of this research. Several varying definitions of a model and framework exist in the literature; after discussion with KM academics and DP practitioners the working definition of a model for the purposes of this research is:

> **'A theoretical construct that represents discharge planning using the variables that will be researched and the logical relationships among them'.**

This definition is used to represent the operation and mechanism of improved DP (Pawlowski & Bick, 2012; Roy et al., 2000; Diakoulakis et al., 2004; Biloslavo & Zornada, 2011). It is used as a tool to harvest knowledge, which is the significant component within any successful KM solution (Wickramasinghe, 2006). The components of the model are drawn from the results of the primary research as is standard research practice (Wickramasinghe, 2006). The model integrates the KM process of identifying, collecting, storing, accessing and creating knowledge and will therefore:

- Identify the tacit and explicit knowledge needed in order to make informed decisions about DP;
- Generate knowledge from data i.e. knowledge discovery. Here technologies will be identified to enable this process;
- Represent knowledge in a form that allows for informed decisions to be made. Here too, appropriate technologies will be identified e.g. a decision support systems;
- Allow knowledge obtained to be stored for reuse and refinement;
- Allow knowledge to be disseminated to all the people involved in the decision making process, enhancing the process.

The model is intended to achieve synergy between the various ‘islands of information’ in a hospital ward environment in order to assemble the knowledge content and to produce a personalised discharge plan. Instead of providing generic healthcare knowledge suitable for a wide range of patients, personalised knowledge sharing is based on the individual assessment of the health profile of the patient (Copper, 2007).

1.11 Research contribution to knowledge

The originality of this study is the model that provides a comprehensive view of the patient pathway for effective DP. It is intended to do this by linking the current silos of information, covering more of the life cycle of the treatment. The model ensures that patient discharge from hospital is part of the process of treatment and not the end of treatment, as hospitalisation is the ‘tip of the iceberg’, in effect the beginning of the convalescence. A model is a basic structure underlying a system and several frameworks exist in relation to healthcare. This proposed model is different from those that exist, and as such is innovative and challenging in that the areas of focus (i.e. DP and knowledge dissemination) is new.

The conceptualisation of the model and its components aims to look into the well- being of patients, to reduce ‘bed blocking’ (the non-availability of beds in a ward) and emergency re-admissions. It also aims to disseminate the right knowledge to the right people at the right time in order to facilitate the DP process. The model allows joint consensus to be formed by being a tool of communication in breaking down the ‘traditional’ silos encountered in a typical hospital environment. The model provides a contribution to academics to carry out further research in the area and to practitioners to implement and make use of the model in the NHS. The model will be oriented toward a practical use in the NHS and toward any healthcare setting. As the research is based on the GT method, a new theory of KM in DP is developed for the purpose of this research. This new theory can be used to produce other KM models, and be the basis of future research. Thus, the innovative method is in itself a contribution to the body of knowledge.

1.12 Ethical considerations

All information obtained from and presented by the NHS Trusts will be made anonymous and stored with confidentiality, in accordance with the University's regulations. The research does not involve patients directly while under treatment, and hence the full NHS ethical procedure does not need to be followed. Former patients, i.e. patients who have been discharged from hospital in the last one year will be approached for the purpose of this research. The framework will be implemented in simulation rather than in theory (i.e. patients will not be discharged) but rather a team of experts will validate qualitatively the potential effectiveness of the produced model.

Information obtained will be provided from the Freedom of Information department of the NHS Trusts. Information related to the trust will be used for the purpose of this research only and if a need arises for other use (e.g. publication in journals, etc.); permission will be sought from the Trusts beforehand. Ethical approval was granted according to Staffordshire University Research Ethics Sub-committee's ethics procedure and policies.

http://www.staffs.ac.uk/about/executive/academic_board/academic_ethics_subcommittee.jsp.

http://www.staffs.ac.uk/assets/Fast_Track_Ethics_Approval_tcm44-37857.pdf

The ethical procedure is followed in the research programme, (i.e. in the data gathering, validation stages etc.) and anonymity and informed consent is ensured and built into the survey design.

1.13 Structure of the Thesis

This first chapter provides an overview of the context of the research. This Section provides an outline into the remaining chapters of the thesis.

- **Chapter 2**

Chapter 2 provides a more detailed description of the research method used for the purpose of the investigation. The chapter reviews several research methods and provides a justification as to why the chosen research method; GT is shown to be the suitable method for the investigation. A description of the sample population being investigated, the sample size, the coding techniques implemented, a description of how the data will be collected and analysed and how the KM model in DP will be formulated.

- **Chapter 3**

The third chapter reviews discharge planning, it investigates how DP is currently carried out in the NHS, the people involved in the DP process and the various factors and departments that require co-ordination for DP to take place. It also investigates the problems currently faced in the NHS that cause inadequate DP, along with the consequences of inadequate DP The chapter also reviews the guidelines prescribed by the Department of Health on how patient discharge should be carried out.

- **Chapter 4**

In order for a KM -based DP model to be created, it is important to gain an understanding of knowledge, the different forms of knowledge and KM. This chapter therefore reviews the literature on KM and KM models and frameworks. This chapter also further investigates the use of KM in healthcare and reviews KM models and frameworks in healthcare. A feature analysis is carried out in order to compare suitable KM models and frameworks.

- **Chapter 5**

The findings chapter presents the results obtained from the primary research, along with a critical analysis of the results. The research findings from the different sources are presented and compared to results obtained from the secondary research. Themes from the GT research start to emerge in this chapter, which set the foundation for the development of the model in Chapter 6. An RCA and Pareto analysis are carried out in order to obtain theoretical saturation – the point at which no more can be added to the developed theory.

- **Chapter 6**

This sixth chapter presents a discussion of the results, a further comparison of the results to the literature in order to identify themes and categories. The KM framework and model that are chosen to underpin the development of the research model is revisited and the themes and categories that emerged from the fifth chapter are used in order to devise the KM-based DP model.

- **Chapter 7**

Once the KM based DP model has been developed, the model needs to be validated by people in the NHS who carry out discharge planning and those who are responsible for planning discharge planning processes and create IT systems based on these processes. The KM based DP model will therefore be validated by a panel of experts and their feedback presented in this chapter. Further to their feedback, a revision of the KM-based model is presented with the feedback obtained by the panel of experts built in to the revised model.

- **Chapter 8**

This chapter concludes the research by providing an evaluation of the research process as a learning process, and suggests directions for future research. The chapter also indicates the originality and contribution of the work to research and practice in the area of discharge planning.

Chapter 2. Research Methodology

2. Introduction to research methods

The first chapter provided an overview into the research. This chapter on research methods (RM) provides an introduction to the methodology of this research, the data collection techniques used and how the analysis is carried out. In contains an explanation of the planned development of the KM theory from the analysed data using the coding processes of the GT method upon which the development of the KM-based DP model is based. The subsequent sections therefore provide details of and make explicit the research philosophy, approach, strategy, the means of collecting the data and the analysis approach as implemented. The chapter will also highlight the potential limitations of the chosen approach and its implementation. The data used in this study is both 'horizontal' and 'vertical' (i.e. objective and standardised data is needed along with deep and rich data) for a full understanding of the problem situation and to allow coding to take place (Morgan, 2007).

The research being undertaken has a set of inter-related objectives as described in Section 1.5.3, set within the context of healthcare and KM. This part of the research relates closely to the sixth research objective (i.e. investigating the factors that contribute to inadequate DP and the procedures currently being carried out). This provides an opportunity to study the gaps that currently exist in the use of knowledge when planning patient discharge and the effect it has on the people involved, serving as a foundation for the development of the KM-based model. NHS Evidence (2010) expresses the importance of personalised DP by stating that it is important for the people involved in the DP process to harvest the personal expertise and knowledge that is essential for patient safety, to learn from it, to adapt it to local situations and individual patients, and distribute the resulting knowledge via reliable networks to the people caring for the patients so that they can use it to improve the quality of care delivered. An important contribution of this research will therefore be the study and analysis of current NHS data on:

- How patients are admitted;
- How a patient care plan is formed;
- How DP is currently carried out and how it relates to the care plan;
- What information is used to devise a discharge plan;

- Who are the stakeholders involved in the decision-making process and what knowledge they already possess;
- How much of the stakeholders' knowledge is used to make DP decisions;
- How targets play a role in the DP decision-making process.

The sixth objective involves the collection and analysis of empirical data that is obtained from two typical NHS settings (i.e. the Christie' and SSSHT) and from general NHS statistics. Therefore by taking theory in parallel with practise (i.e. by comparing the literature review with the 'real world') the researcher is able to gain a fuller understanding of the issues that surround the implementation of a KM model, thus being better placed to contribute useful knowledge in relation to DP for the purpose of the NHS (Biggam, 2008). The research also intends to investigate the factors that contribute to inadequate DP, by undertaking the following tasks:

- Analysing the factors that are currently taken into consideration when planning discharge;
- Identifying other factors that might have been overlooked and their possible contribution to more informed decision making when planning patient discharge;
- Examining the consequences that inadequate discharge planning has on the people involved and the system as a whole.

This raises the next issue which the choice of the most suitable research method to be adopted when dealing with the issue of achieving Objective 6.

A valuable part of the selection and justification of the research methodology will be based on the research 'onion' (see Figure 3) in order to choose the best research methods to deal with the issues raised in Objective 2 in the most efficient way possible (Saunders *et al*, 2009). The research 'onion' depicts a research design as a series of layers, which need to be 'peeled away' in order to arrive at a suitable research programme. Each layer of the onion has its respective and progressive significance in the research process, each contributing to the 'core issue' (i.e. the conclusion of the research itself). The layers will be examined closely in the subsequent sections, with a clear indication of which is the most suitable for the purpose of this research. The next Section will commence with a description of research philosophies.

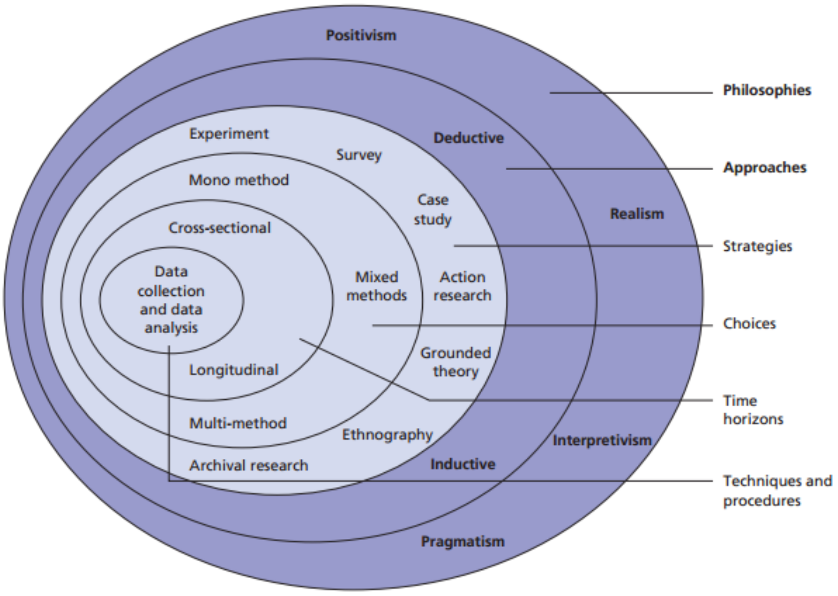
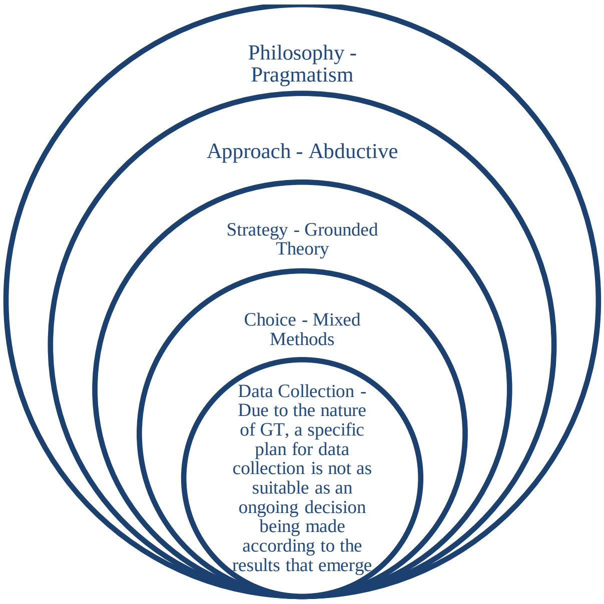


Figure 3a. The Research Onion

Source: (Saunders *et al*, 2009)



3b 1The research Onion specific for the research

2.1 Research Philosophy

Research philosophies or paradigms help to formulate the underpinning world-view or assumption about the research in hand. Knowing what view to espouse is important in helping to decide what ‘shape’ and direction the research will take (Creswell, 2008). Using the most suitable research philosophy ensures that the core of the problem (i.e. in the case of this research, inadequate DP practice) is approached in the optimal manner. Various research philosophies exist, as seen in Figure 3, so in using the research ‘onion’ a comparison will be made based of Positivism, Realism, Interpretivism and Pragmatism as the main paradigms that can underpin the research. These will be reviewed before a selection is made.

2.1.1 Positivism

A positivist believes that a cause probably determines effects or outcomes. Positivists adopt a scientific approach to research, where the observable social reality is preferred and the end product is generalisations that are likened to laws or rules (Saunders et al., 2009; Susman & Evered, 1978; Chesbrough, 2009). Knowledge that develops from positivism is therefore based on careful observation and measurement of the objective reality that exists in the world. It is based on existing theory to generate a research strategy and collect data. In the positivist philosophy, developing numeric measures of observations and studying the behaviour of individuals is paramount (Saunders et al., 2009; Pansiri, 2005; Jones & Alony, 2011; Susman & Evered, 1978). A positivist approach to research therefore begins with a theory then data collection that supports or refutes the theory followed by making the necessary revisions before additional tests are made. In positivism, data, evidence and rational considerations shape knowledge, and therefore being objective is extremely important (Flowers, 2006; Graham & Thomas, 2008a; Biggam, 2008; Saunders et al., 2009; Charmaz, 2006).

2.1.2 Realism

Realism, like positivism, assumes a scientific approach to the development of knowledge (Charmaz, 2006; Pansiri, 2005; Chesbrough, 2009). It however is value cognizant (i.e. it is aware of the values of participants and researchers) in agreeing a ‘shared view’ of the research (Charmaz, 2006; Saunders et al., 2009; Biggam, 2008; Krauss, 2005). Realism is therefore able to distinguish that the boundary between reality and people’s perception of reality is somewhat plastic (Krauss, 2005). According to Flowers, (2006) realists delve into mechanisms and structures that underlie organisations and practises. These empower and constrain the people involved, and researchers examine how they can be critiqued and changed over time. The realist believes in researching from different angles and at multiple levels in order to gain a better understanding as reality exists on multiple levels. A positivist believes that causal relationships exist that apply universally and that the underlying mechanisms behind these relationships can be understood through observation. Realists, however, believe that the underlying mechanisms simply dictate that things have to act in a certain way when there are other factors that can moderate these tendencies that vary according to the circumstances. In realism, therefore, the focus is more on understanding and explanation than on prediction

(Flowers, 2006; Haig, 2006; Cameron, 2011). The realist is in line with the positivist in believing that science is empirically based, rational and objective, and not discovered simply through language and discourse (Flowers, 2006; Ulrich, 2007).

2.1.3 Interpretivism

Interpretivism contends that only through subjective interpretation of and intervention in reality can that reality be fully understood (Ulrich, 2007; Krauss, 2005). Studying phenomena in their natural environment is very important in Interpretivism, which also recognises that researchers cannot avoid becoming involved or affecting the phenomena studied. It is therefore important to enter into the phenomena being studied and understand how the actors involved feel and what is their view point, thus adopting an empathetic stance (Durant-law, 2005; Onions, 2006; Saunders et al., 2009). Interpretivism, like realism, recognises that natural and social sciences vary and that social reality is pre-interpreted as the researchers and participants have pre-conceptions about the research domain (Flowers, 2006). Knowledge is therefore socially created from an Interpretivist point of view and is created when the Interpretivist researcher participates in the ‘world’ of the research and becomes one of its ‘social actors’, thus being able to understand their points of view, rather than having a ‘bird’s eye view’ or external perception of a scenario.

2.1.4 Pragmatism

Pragmatism believes that the human capability of theorising is necessary for intelligent practice to be carried out, as theory and practice are not separate (Hope, 2001; Ulrich, 2007; Shields, 1998; Saunders et al., 2009). Theories help to determine how things are done in practice. Pragmatism has been defined as a philosophy of common sense, because actions are assessed in the light of practical consequences and inquiries are not limited to individual effort (Johansson & Lindhult, 2008). With respect to DP in the NHS it is similar to the multi-disciplinary team making an informed decision based on group knowledge rather than an individual effort. It uses purposeful human inquiry as a focal point (Shields, 1998). This factor is vital to research on DP in the NHS, as in DP the decision to discharge is not made single-handedly, but rather it is a group decision, requiring a co-ordinated effort. Hence, having a pragmatic view is important as it allows the different ‘stakeholders’ involved in the decision-making process (e.g. within the NHS, outside the NHS, the patient and the carers) to jointly make informed decisions.

John Dewey, one of the founding fathers of Pragmatism is quoted as saying, ‘there is no question of theory versus practise but rather intelligent practice versus uninformed practice’ (Morgan, 2007). Uninformed practice appears to what the NHS is currently practising in DP, as people, functions and departments are acting as silos with very little sharing of information. By breaking down the silos and encouraging the fuller and more timely sharing of information, personalised informed decisions can be made about a patient’s discharge. Pragmatism allows for the mixing of methods, thus yielding superior research insights (Saunders *et al*, 2009). The ability to peruse mixed methods is fundamental to this research, as currently DP in the NHS is based heavily on quantitative measures such as waiting list targets, treatment time targets, bed day targets and other such numerical and time-based measures (Coulter, 2009; Onions, 2006; Hope, 2001; Morgan, 2007). A positivist philosophy has hitherto been applied in the NHS with regards to DP and some of the apparent problems linked to inadequate DP may be attributed to the unsuitability of the positivist paradigm for the domain. The research will examine this further.

Looking into qualitative measures would also be useful when planning discharge in this way, as holistic knowledge can be gained about a patient and about a case when making a decision, thus allowing for more informed decisions to be made. Positivism emphasises the objective properties of reality, independent of observation. Pragmatism on the other hand contends that no theory can satisfy its demands (Pansiri, 2005). The pragmatist looks at the capacity of a theory to solve human problems and to be able to facilitate the human problem-solving process. When research is conducted under this paradigm, knowledge is constructed on pragmatic grounds and strategies of inquiry are employed that involve data collection simultaneously or sequentially to better understand the research problem (Pansiri, 2005). For a pragmatist, therefore, knowledge arises out of actions, situations and consequences rather than antecedent conditions and the pragmatist looks at what is most suitable for a particular setting (Pansiri, 2005). Value establishment is therefore a crucial part of research to a pragmatist, while Positivists are value-free and Interpretivists are value- bound. In Pragmatic research, reality is accepted as a ‘given’ and explanations of the domain that produce the desired outcomes are chosen as research direction.

This aspect of pragmatic research was also a key determining factor for choosing Pragmatism for the purpose of this research. This is because when dealing with DP in the NHS, the explanations that produce the desired outcome (i.e.in this case, the most desirable DP personalised to the patient) are important in order to optimise efficiency in the NHS as a whole and allow for informed decision-making. The knowledge collected is seen as a means of improving DP and being able to compare experience with theory is important. Currently the knowledge gathered by people within the NHS that may be directly or indirectly involved in the discharge of a patient is not being recoded (i.e. categorised and themed) and distributed effectively. The knowledge that is possessed by the doctors and nurses who are treating patients (i.e. their experiential knowledge) needs to be captured and incorporated into the KM-based DP model, allowing it translate from practice into theory and vice versa. A conversion of implicit knowledge (i.e. the knowledge possessed by the healthcare personnel that can be communicated) to explicit knowledge (i.e. in the form of the model) and back to tacit knowledge (which is the ‘know how’ of healthcare personnel), can lead to more informed and therefore more effective decision-making about DP.

2.2 Research approach

There is no single explanation of what may have caused inadequate DP in the NHS. A number of factors exist and these factors need to be handled in their own way, rather than in one rigid or ‘value bound’ way. A variety of factors exist when dealing with DP, and in order to facilitate the consideration of all these factors, an abductive approach has been chosen for this research (see Section 2.2). An abductive approach will allow for alternative explanations and measures to determine a personalised DP rather than a single very structured design (Morgan, 2007). This currently is one of the problems that results in inadequate DP, where the area of focus is singular (i.e. on the quantitative measures) overlooking the qualitative measures. A blend of both the inductive and deductive approaches seems to be more suitable to this research. An inductive approach is one where data is collected and a theory is developed as a result of the research philosophy (Reichertz, 1995). It is traditionally linked to the Interpretivist philosophy, where data collection actively involves the researchers’ involvement with the study at hand. A deductive approach is one where a theory and hypothesis is produced, followed by a strategy to test the hypothesis (Saunders *et al*, 2009).

According to Reichertz (1995) and Morgan (2007), abduction allows for quantitative and qualitative methods to be combined sequentially, where the inductive results from the qualitative approach can serve as inputs to the deductive goals of the quantitative approach and vice versa. The abductive approach therefore will allow for solving of problems (i.e. problems with regards to DP) in a practical way (Reichertz, 1995). In this research the context of the problem (i.e. inadequate DP) firstly needs to be understood, in order to design and determine the KM Framework that will aid in making more informed decisions. Hence, the choice of the abductive research approach of which Grounded Theory (GT) is an example.

2.3 Research Strategy

2.3.1 Grounded Theory

GT is suitable for research where new theory is intended to be formed, and derives its theoretical underpinnings from pragmatism (Glaser & Strauss, 1967; Corbin & Strauss, 1990). The theory created is therefore grounded in data systematically gathered and analysed (Glaser & Strauss, 1967; Corbin & Strauss, 1990). The theory evolves through research and an interplay between comparative analysis and data collection (Glaser & Strauss, 1967; Strauss & Corbin, 1994). It therefore creates a new theory consisting of interrelated concepts as opposed to testing existing theories, closing the gap between theory and empirical research (Richards, 1993; Strauss & Corbin, 1994), making it very suitable to predicting and explaining behaviour and building theory from it (Saunders et al., 2009). GT emerged in America in the late 1960’s through work by two sociologists Glaser and Strauss, during a collaborative study of patients dying in hospitals (Charmaz, 2006).The two sociologists examined how patients died in hospitals, and how healthcare personnel and the terminal patients knew they were going to die at a time when death was rarely talked about in hospitals (Charmaz, 2006). They explicitly analysed their data and produced a theoretical analysis of the organisation and the temporal order of dying, and as they constructed their analysis of dying they developed a systematic methodological strategy for the perusal of other social scientists.

In the 1990’s the co-originators of grounded theory split and Strauss and Corbin released their version of grounded theory, which Glaser called a full conceptual description as opposed to grounded theory (Walker & Myrick, 2006). Straus and Corbin’s initial texts about GT positioned GT as a methodological/methods package. In 2008 however they included a chapter explaining the link of the methods to pragmatism, bridging the gap between research philosophy and methodology and how the philosophy underpins the methodology (Mills et al., 2006; Walker & Myrick, 2006). Glaser however focused on the GT method itself and what constitutes it, dismissing the applicability of any philosophy to GT as adopting philosophy in his opinion reduced the broader potential of GT (Glaser, 2005; Mills et al., 2006). The difference in the data analysis process is where the disconnect between Glaser and Strauss lies. Coding, comparison, questions, theoretical sampling, and memos are used for theory generation in both Glaser and Starus’s version of GT, and both are advocates of the research process which involves gathering data, coding, comparing, categorising, theoretically sampling, developing a core category and generating theory. The difference in their opinion therefore lies not in the basic process however in the way in which these processes are carried out (Strauss & Corbin, 1994; Mills et al., 2006; Walker & Myrick, 2006). As said in (Myrick, 2006) ‘to explore all the differences between Glaser and Strauss could encompass a book’.Over the years, several permutations of GT have evolved (Graham & Thomas, 2008a; Lubega, n.d.; Charmaz, 2006; Lehmann, 2010; Onions, 2006). The approach that will be adopted for this research is evolved GT or also known as emerging design by Strauss and Corbin (Mills et al., 2006; Corbin & Strauss, 1990). This is as emerging design GT, encourages the use of literature to stimulate the thinking of the researcher about the properties or dimensions of the data collected, helping with the analysis of the data present (Grant & Grant, 2008; Corbin & Strauss, 1990). For the purpose of this research literature from various sources such as reports by the healthcare industry and literature reviews will complement the primary research, and will add value to the critical analysis and coding. All GT approaches, namely the systematic design, emerging design and constructivist approach have common characteristics (Edmonds & Kennedy, 2012). These characteristics include the theoretical sensitivity, the ability of the researcher to generate meaning from the data collected, their ability to fully exploit the data collected and generate meaning from the data and the degree to which the researcher is attuned to the nuances and complexity of the participants responses, actions and behaviour (Edmonds & Kennedy, 2012; Corbin & Strauss, 1990). Another common characteristic includes the treatment of the literature, the researchers’ ability to engage with the literature from the beginning of the research and extract useful meaning out of the literature and relate it to the data collection (Edmonds & Kennedy, 2012). The emerging design permutation of GT encourages the use of literature to interweave the data collection during the critical analysis and coding of the data collected (Corbin & Strauss, 1990; Charmaz, 2006; Edmonds & Kennedy, 2012). Coding and diagramming and identifying the core categories of the data collected is also a common characteristic of GT, as they assist with generating a theory which is significantly analytical and representative of the structure and process or the problem being examined (Edmonds & Kennedy, 2012).

Constructivist GT is a permutation of GT (Charmaz, 2006; Egan, 2002) in which there is an underlying assumption that the interaction between the researcher and the participants produces the data and therefore involves the active participation of the researcher and the results of the data collection involves the opinions and thought process of the researcher as well

(Charmaz, 2006; Edmonds & Kennedy, 2012). In this research however, the researcher’s involvement includes observations and interviews where participants share their experiences and the responses from the participants were used in the critical analysis and coding of data, hence the choice of emerging design GT.

Due to this research being data-driven and the starting point being reports of inadequate DP in the popular press, the experiences of patients were collected followed by the experiences of healthcare personnel in the NHS. GT seeks to understand how the actors in the investigation actively respond to their conditions and to the consequences of their actions, rather than merely seeking to uncover the relevant conditions (Corbin & Strauss, 1990). It is therefore the responsibility of the researcher to identify the nature of this interplay. The starting point of this research was not some existing research or other academic literature, but rather the experiences of the people involved in the DP process i.e. the patients, carers, and healthcare personnel.

The GT method therefore ensures that the ‘voices of the people involved’ take centre stage (Lynch, 2011). This allows for a patient-centred discharge plan, ensuring the pre- and post-discharge information and knowledge needs are met in the context of day-to-day practices in a typical hospital setting and across the primary and secondary care interface and that the needs of the wider healthcare community (i.e. carers and social workers) is taken into consideration (Worth et al., 2000). Data collection for GT can come from a variety of sources, and the data collection procedures involve interviews, observations and other sources such as newspapers, government documents, and anything that might provide an insight into the area under study (Corbin & Strauss, 1990). When the data is collected, a literature review is carried out in order to reinforce the results and this is used as a point of comparison. The combined result obtained from the primary research and the literature review is used to derive the artefact (i.e. the theory and the KM-based DP model). The main reason that GT is suitable for this research is because it is focused on bringing about change in the way DP is currently being conducted as the tools of GT help to better understand individuals’ perceptions and feelings with regards to a particular subject area (Glaser & Strauss, 1967; Corbin & Strauss, 1990; Charmaz, 2006). The stages of GT are believed to bring about this change and to better exploit KM technologies, by being able to develop academic theory into practical concepts that influence actions in the organisation and then feed it back into the academic research (Shah et al., 2007).

2.3.2 Action Research

Action Research (AR) produces practical knowledge that is useful to people in the everyday conduct of their lives while combining it with in-depth theoretical development (Shah et al., 2007). AR is described by Susman & Evered, (1978) in the following terms, ‘ *AR aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework.’*

Its wider purpose is to contribute through the practical knowledge produced to the increased well being of people and communities and to a more sustainable relationship (Hope, 2001, Johansson & Lindhult, 2008). AR explicitly varies from other research strategies in that it is focused on action, and in particular in promoting change within an organisation (Saunders *et al*, 2009). It does this by braving the challenge of combining research and development for its mutual benefit and focuses on the communication between different practitioners and people concerned (Johansson & Lindhult, 2008). Its iterative nature is appealing in that it allows for data to be collected, analysed, the problem revisited until a solution is agreed upon (Biggam, 2008). AR would have been a suitable research strategy, however as it is a lengthy process, the time limitations of the research inhibited AR from being the chosen strategy. The ethical consideration of conducting an AR research in the NHS is deemed to be impractical within the time constraint. The feeding back improvements as the research progresses, which is a key point of AR would be unethical in a hospital context. Further to this, GT offers a powerful methodological framework, allowing for the perceptions of the individuals involved in the DP process in the NHS to be fed back allowing for the emergence of themes which will be incorporated into the KM Model for DP, thus allowing a more personalised approach to DP.

2.3.3 Experimental strategy

The experimental strategy is one where causal links are studied. Here the ‘how and why’ questions are raised to determine the causal links between variables, and the subjects being studied would be experimented upon (i.e. the patients, doctors and nurses) would have to actively participate in the study (Saunders et al., 2009). The experiment strategy will therefore not be feasible for the purpose of this research as the ethical implications of patients who are in hospital due to an illness participating in the study is out of the question. In any case, the timescale of the research would not be feasible to accommodate an experimental strategy.

2.3.4 Survey method

Surveys allow the collection of large amounts of data from a large population. They are deductive in that they ascertain who, where, how much, how many sort of questions (Saunders et al., 2009). The data collected is usually quantitative and this research requires both quantitative and qualitative data to be collected. Currently DP is done in order to meet quantitative measures and therefore this research intends to bring in the qualitative aspects.

2.3.5 Case Study method

The case study approach involves an empirical investigation into a phenomenon in its real life context (Saunders et al., 2009). This is suitable for this research, as the case study is an exploratory research and it investigates various cases into depth. However identifying the context and personalisation can be difficult thus impacting upon the implementation of the framework for the NHS as a whole. When using the case study method the KM framework that would result would be suited to that particular case or cases, and its usability in other NHS settings could be questionable (Blaxter et al.,2001).

2.3.6 Ethnography method

The ethnography method, too, shares many of the limitations of the case study method for the purpose of this research. Ethnography requires a setting that will answer the research question, and it will then be thoroughly studied (Saunders et al., 2009). However the results that emanate from this type of study may not necessarily be applicable to the NHS as a whole.

2.3.7 Archival research

Archival research, as its name implies, involves dealing with historical data and answering questions which focus on the past and changes over time to be answered (Pansiri, 2005; Saunders et al., 2009). In this research some established ways in which DP was conducted will be looked into, however a more holistic view of DP, including current practice is required, for the KM framework and hence the unsuitability of archival research for the purpose of this research.

2.4 Research choice

‘Mono method’ refers to using one data collection technique, while ‘multi-method’ involves the use of several data collection techniques (Saunders et al., 2009) (Tashakkori & Teddlie, 2003). ‘Mono-method’ would not be a suitable option for this research as a holistic view is required when planning discharge and merely a numerical analysis or non-numerical analysis would not suffice. The 'multi-method' or mixed method is therefore chosen as it is very much in line with the pragmatist philosophy that has been chosen in this research. Pragmatism has been linked to mixed methods by many scholars (Creswell, 2008; Pansiri, 2005; Tashakkori & Teddlie, 2003; Johnson & Onwuegbuzie, 2004).

Using both qualitative and quantitative data collection techniques will provide a better opportunity to answer the research question by allowing different methods for different purposes in the study, thus addressing thoroughly all the issues related to the research. The development of the KM Framework for DP would require the use of both qualitative and quantitative techniques to ensure that all the factors that contribute to DP are 'factored in' and the current gaps that exist due to an increasingly quantitative approach are filled. Employing a mixed methodology for this research appears to be suitable as it allows issues pertaining to DP, emergency readmissions and delayed discharge to be clarified and pursued in greater depth. The results obtained from the qualitative and quantitative research methods, provides leverage to one another, complimenting one another or opening the door to further investigation. The mixed methodology employed allows for the statistics presented in the press and by the Department of Health to be matched against the qualitative data collected from the interviews and observations carried out in the NHS.

The research is initiated by identifying a suitable area of study, and for the purpose of this research, the area is DP in the NHS. This is then followed by the second stage, where data selection is initiated. The potential data associated with the research question is located and identified as being data from patients, carers and healthcare personnel. This data is located in NHS Trusts, with general practitioners (GP's) and with patients. GT uses a form of sampling known as theoretical sampling, where participants are identified and selected based on the initial findings (Charmaz, 2006). In the case of this research, a review of the reports in the popular press indicated that the patients and healthcare personnel were key persons involved in the DP process.

> '*Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes and analyzes his [sic] data and decides what data to collect next and where to find them, in order to develop his theory as it emerges. This process of data collection is controlled by the emerging theory*'

(Glaser & Strauss, 1967; Corbin & Strauss, 1990; Edmonds & Kennedy, 2012).

2.5 Data collection

Emerging Design GT can be outlined by the following processes as seen in Figure 4. Due to the nature of GT, a specific plan for data collection is not as suitable as an ongoing decision being made according to the results that emerge. This is then followed by the initiation and data collection, which is carried out using the abductive approach, where through a cycle of induction and deduction data is collected, the results are compared and new findings are identified and are used to guide further data collection (Hansen & Kautz, 2005). Data analysis in GT involves a constant and continuous method for comparing, generating and analysing data as seen in Figure 4. This part of the research process involves coding and categorising the facts that emerge from the data collection according to their properties and developing concepts and themes from their classification by a process of elaboration. Data is collected and analysed in this way until theoretical saturation is reached – the point at which no new relevant data emerges from the relationships and themes between the categories (Corbin & Strauss, 1990; Egan, 2002). At this point it may be said that a new theory has been produced, based soundly on facts that are collected in the research domains. In this case the innovative KM-based DP framework will be based on the theory produced by GT.

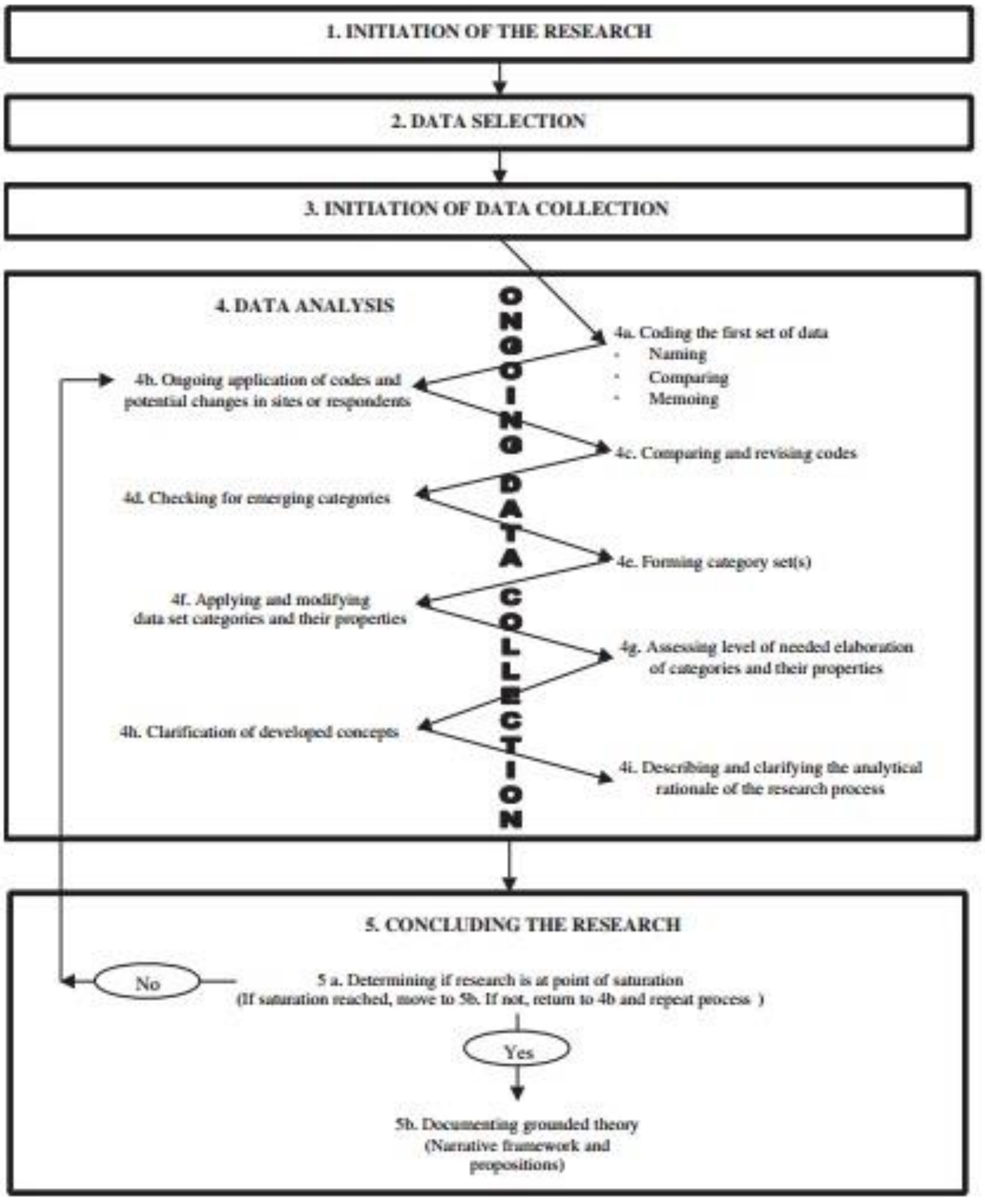


Figure 4. Steps undertaken in Grounded Theory

Source: (Egan, 2002)

2.5.1 Sample population

The target population for this research will be NHS trusts in the United Kingdom. In order to tailor the study to the prescribed time scale, The Christie NHS Foundation Trust in Manchester and the South Staffordshire and Shropshire Healthcare Trust were chosen. These particular trusts were chosen, as they will allow research to be conducted. The Christie NHS Foundation Trust is a Cancer Hospital (NHS, 2012f) and the South Staffordshire and Shropshire Healthcare Trust treats patients with mental health, learning disability, diabetes and offers specialist children’s services (NHS, 2012e). The sample NHS Trusts are different, but they are typical in terms of their patient admission and discharge processes and practices.

2.5.2 Sample size

A small but varied sample was viewed as an appropriate method for collecting data (Biggam, 2008; Onions, 2006; Saunders et al., 2009; Charmaz, 2006), as this allows for a variety of events and experiences to be explored from the different individuals (Graham & Thomas, 2008b). A small rich sample was interviewed as opposed to a large sample, and quality time was spent with the interviewees. The hours spent with each interviewee can be seen in Table 2b. Smaller sample sizes offer deep, rich data (Daymon & Holloway, 2010) and allow the specific responses and individual interpretations of participants to be captured, an aspect which can be lost with larger sample sizes (Daymon & Holloway, 2010). The aim of the data collection was to obtain a wide range of responses, and allow for individual interpretations, and therefore a ‘maximum variety’ sampling was implemented (Biggam, 2008). A set of semi-structured interview questions were used. The interview questions were designed by the researcher, based on the secondary research that was carried out. The questions explored interviewees’ experiences of discharge, their experience with the provision of information such as discharge date, prognosis and symptoms, provision of medication and explanation, follow up appointments and the interviewees’ perception of the care provided by healthcare personnel.

The detailed interview questions and responses can be found in Appendix A, Section 1.0. The Meetings have been labelled Meeting 1-5 to differentiate the meetings according to the different set of people interviewed and given meeting codes, which can be found in Appendix A. A total of 8 former patients and 6 carers were interviewed, the criteria for selection were that patients should have been an inpatient over the past year had been discharged from hospital and were currently well enough to be interviewed. The details of the interviewees can be seen in Table 2a, and the time spent in hours with all the interviewees can be seen in table 2b. The interviews were carried out with both former patients and carers via face-to-face in former patients’ houses and where this was not possible by using Skype. The former patients interviewed were those who had recent (i.e. 2012 – 2013) experience as an inpatient. Contact was made initially with suitable patients by word of mouth and appointments were then made to proceed with the interview. In instances where former patients and carers were interviewed together, their views were obtained separately both through the face-to-face interviews and over Skype. The interviews all lasted approximately sixty minutes with each former patient and carer and were recorded and transcribed fully at a later stage of the research.

Healthcare personnel were interviewed using semi-structured interview questions, in the Christie and SSSHT as part of the Clinical Portal Project and Process Mapping Sessions that was carried out in the respective trusts. The Process Mapping sessions lasted a total of 7 working days from 9am – 5pm, therefore 56 hours was spent with healthcare personnel during the process mapping sessions. A total of 4 Doctors, 3 Nurses, 3 Administrative staff and 2 former patients from a former patient participation group were interviewed. The Patient Participation group was a two day event that lasted from 9am – 5.30pm. The interviews lasted approximately 1 hour with each person interviewed, and was carried out over the two days. Therefore a total of 12 hours was spent interviewing participants. The interview questions and their responses can be found in Appendix A Section 2.0

Interviewee Type	Interviewee Age Range	Gender	Patient Diagnosis
Former Patient	65 – 70	Female	Breast Cancer
Former Patient	60 – 65	Male	Hernia
Former Patient	50 – 55	Male	Kidney Stone
Former Patient	65 – 70	Male	Heart Condition
Former Patient	70 – 75	Female	Back Operation
Former Patient	75 – 80	Male	Stroke
Former Patient	40 – 45	Female	Stomach Ulceration
Former Patient	65 – 70	Female	Spinal related condition
Carer	70 – 75	Male	Breast Cancer
Carer	60 – 65	Female	Hernia
Carer	35 – 40	Female	Kidney Stone
Carer	45 – 50	Female	Heart Condition
Carer	45 – 50	Male	Back Operation
Carer	65 – 70	Male	Spinal related condition

Table 2. Interviewee Details

Interviewee	Hours Spent
Former Patients – Face to face interview	8
Former Patients – Patient Participation Group	2
Carers – Face to face interview	6
Healthcare personnel – semi structured interview session	56
4 Doctors – Patient Participation Group	4
3 Nurses – Patient Participation Group	3
3 Administrative Staff – Patient Participation Group	3
Total Hours Spent	**82**

Table 3. Hours Spent with Interviewees

2.6 Data analysis

Coding is the first step to data analysis in GT (Glaser & Strauss, 1967; Corbin & Strauss, 1990; Strauss & Corbin, 1994; Charmaz, 2006). Coding captures the results obtained via interviews, focus group sessions and observations in the primary research. It allows for the abstract interpretations of statements obtained through primary research (Charmaz, 2006).

2.6.1 Coding

There exists three types of coding, open, axial and selective coding (Corbin & Strauss, 1990). Open coding refers to the process of generating initial codes from data, it is the phase of being open minded when trying to identify codes in the data, axial coding involves developing and linking categories and selective coding involves selecting and identifying particular categories of codes that form an essential concept which can elucidate many aspects of the situation being examined (Corbin & Strauss, 1990). According to Charmaz (2006), axial coding applies a rigid and formal frame to data analysis, and recommends a less formalised approach to identifying categories and sub-categories. The three forms of coding open, axial and selective are applied for the purpose of this research, and Charmaz's suggestion of perusing a less formalised approach to axial coding is applied. A diagrammatic summary of the coding steps can be found in Figure 5.

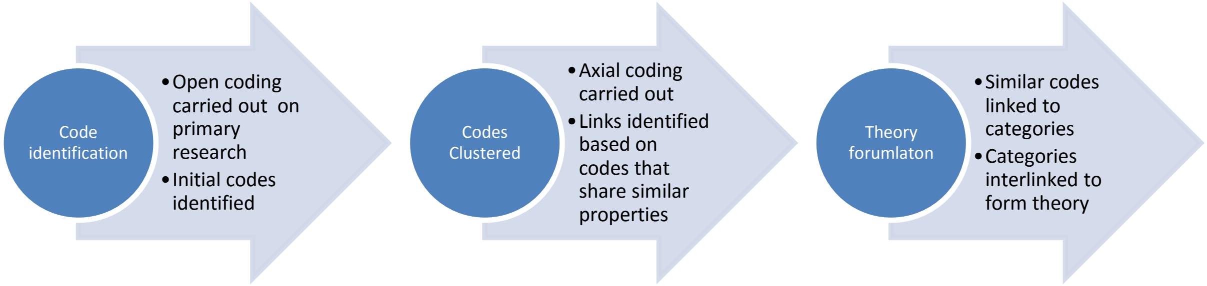


Figure 5. Grounded Theory coding steps.

Source: (Corbin & Strauss, 1990; Charmaz, 2006)

Initial categories are identified from the early stages of primary research, followed by links being identified between categories forming a concept, providing a clearer view of the various factors that are causing inadequate DP. The responses from the interviews and the observations from the process maps in this research were tabulated using Microsoft Excel and codes were identified from the responses, which identified the relevant codes (Corbin & Strauss, 1990). Once the properties of the codes were identified they were clustered into thematic categories.

2.6.2 Identifying categories

Some of the identified codes shared similar characteristics and therefore were clustered together into similar categories, which can be inter-linked to underpin a theory. Some categories can occur more frequently in the data and as a result the category can be of a higher priority in solving the overall problem. The Pareto analysis assigns frequency to the emerging categories and so will help to identify the categories that need an immediate focus, in order to solve a greater portion of the problem (NHS Institute for Innovation and Improvement, 2008). These categories can be called the core categories (Corbin & Strauss, 1990). In a 'classic' distribution of data, the 80:20 rule may apply (i.e. 80% of problems will be entail 20% of causes). Comparison and reflection on the primary research results, the codes identified, the emerging categories and the core categories helps to crystallise the KM Model for DP and to build the emerging theory. Categories are identified by using Microsoft Excel for the purpose of this research. It was seen that in practice using a pen and paper seemed to produce meaningful categories more readily. The codes representing problems and issues were listed on paper, the links between codes identified and the coded problems were then clustered into categories on paper by arrows and notes that were recorded by codes. Once the categories were identified and refined through the research it was possible to carry out a root cause analysis (RCA) exercise to identify the causes of the problems.

2.6.3 Root Cause Analysis

A root cause analysis or Ishikawa analysis identifies the likely causes of a problem diagrammatically (IMS International, 2013) and to explore the root of these causes. This can help with further analysis, assist the diagramming stage of data analysis in GT, especially with arranging and linking codes into the appropriate categories, and ensuring that the theory produced is dense and significantly analytical (Edmonds & Kennedy, 2012). The first step to the root cause analysis is identifying the problem, in the case of this research inadequate DP resulting in incomplete treatment, ‘bed blocking’ and unwanted readmission to hospital (IMS International, 2013). This is then followed by the second step which is identifying the major factors involved or the categories that have emerged from the GT. Once this is done, the codes are inserted as the possible causes of the major factors (i.e. the categories). This is then followed by a Pareto analysis as will be described in Section 2.7.4, which helps identify the categories which cause most of the problems and which require immediate attention.

2.6.4 Pareto Analysis

The Pareto analysis (also known as the 80:20 rule) helps to prioritise and to identify the problem areas that require resolving in order to make changes (NHS Institute for Innovation and Improvement, 2008). Therefore for eighty percent of a problem to be resolved, it highlights twenty percent of the area that can be prioritised and focused upon. The percentages are not to be taken literally but rather metaphorically (NHS Institute for Innovation and Improvement, 2008).The Pareto analysis helps to identify the core categories of the research that require prioritising, which adds value to the theory formulation which can be found in Section 2.7.6

2.6.5 Memo writing

Memos are a set of notes which contain ideas, process flow and thoughts by the researcher. Memos allow the researcher to reflect of the interviews and are notes that are made fresh from the primary research and as and when thoughts crop up. It therefore contains valuable pieces of information. Memos contain valuable pieces of information that the researcher has formulated throughout the research process, which act as building blocks to the ‘bigger picture’ of theory formulation (Charmaz, 2006; Corbin & Strauss, 1990). Memos can be seen as the intermediate stage between category identification and theory formulation as they are rich in ideas and yet are not fully formalised.

2.6.6 Theory formulation

When formulating the theory the criteria set of GT highlighted by Charmaz (2006) should be fulfilled. The criteria include:

- Credibility, ensuring there are strong links between the data gathered and the problem area being investigated;
- the data is sufficient to merit claims;
- the categories offer a wide range of empirical observations;
- originality, where the categories offer new insights;
- there is social and theoretical significance to the work;
- resonance, ensuring the categories portray fullness of the study;
- it makes sense to the participants;
- the analysis offers a deeper insight to the people involved in DP;
- usefulness, the analysis can spark further research;
- it contributes to the body of knowledge and offers interpretations healthcare personnel can peruse to improve the DP process.

The process of theory formulation is complete when ‘theoretical saturation’ is reached (i.e. no more themes can be produced by codifying the data.

2.7 Data collection procedure

As this study uses mixed methods, both quantitative and qualitative data collection techniques are employed. By implementing both techniques it is hoped that a holistic view is taken into consideration when the KM-based DP framework is developed.

2.7.1 Quantitative data collection

Quantitative data collection includes close-ended information. Here questions are asked and the response received is close ended. It is not open to discussion, but rather it is capable of being statistically analysed (Creswell, 2008; Tashakkori & Teddlie, 2003). Quantitative survey methods often include questionnaires. There are three objectives of a questionnaire, the first being translating the information needed into a set of specific questions that respondents can answer. The next is to motivate and encourage the respondents to become involved in the questionnaire and to c-operate fully when answering the questionnaire, and finally the questionnaire must be designed to minimise error in responses (Biggam, 2008). Questionnaires are used in this study in order to determine what data doctors and nurses feel is necessary for their immediate perusal when meeting with a patient and when initiating the admission and discharge of a patient.

The questionnaires were administered to patients, doctors and GP's. The questionnaires intended to gain the respondents' experiences with the DP process and to identify current 'loop holes' that exist in the current DP process. The objective of the questionnaire is to gain an understanding of how DP is currently carried out and to identify flaws that emerge from the current DP process. The questions were designed to suit the different classes of respondent. The questionnaire given to patients and carers focuses on their experiences and their involvement in the DP process. The questionnaire that was given to hospital doctors and GPs focuses on the knowledge requirements for DP to be carried out effectively.

One set of questionnaires was distributed using survey monkey to doctors, and GPs in the Greater Manchester area. This questionnaire is part of a greater project carried out with the Christie Trust that involved KM research. It intends to gain an understanding of what information hospital doctors and GPs perceive as being important during the DP process. The ethical process ensured that the confidentiality of the healthcare personnel was maintained (see Section 1.12). The second set of questionnaire to patients was given during the semi-structured interviews with the patients.

2.7.2 Qualitative data collection

Qualitative data collection acquires open-ended responses from its participants unlike quantitative data collection. The open-ended responses help to uncover, expose, and enable the consideration of the complexities within a particular setting, thus allowing the researcher to extract greater depth and to add body to the study (Creswell & Plano Clark, 2006). An interview is a purposeful discussion between two or more people that involves oral questioning of the respondents Saunders et al., (2009). There are four interview techniques, namely; unstructured interviews, focused interviews, open-ended interviews and closed-question interviews (UNESCO, 2007).

Unstructured interviews are spontaneously generated with no fixed set of questions and it is hoped that the main topic or purpose of the discussion can be maintained without too much deviation. A balance has to be struck between the value of capturing unexpected information and wasting time on irrelevant questions. A skilled interviewer will maintain this balance. Focused interviews, on the other hand, have a limited set of questions and are effective at captured known or expected information, but unexpected information may be missed. The open ended interview is similar, where there are a certain number of questions which the interviewer asks, however the interviewees can respond in any particular way that suits them. This is unlike the closed question interview where respondents will be given a fixed choice of responses to choose from (UNESCO, 2007). This may be useful where a large number of responses are expected but the data will lack 'richness' and will certainly miss unexpected information, making it largely unsuitable for use with GT as it would restrict the coding process, which relies assigning meaning to data that may have little or no meaning when it is first obtained. Open-ended interviews are used for the purpose of this research, as it is semi-structured and allows the interviewees to give their points of view and their descriptions as desired without limiting them to a fixed set of responses while maintaining the topic of discussion within the area of focus (Saunders et al., 2009). In this research healthcare personnel such as doctors, nurses and administrative staff are interviewed and their experience with the DP process and involvement with patients can be understood. How DP currently takes place and the gaps that currently exist in DP are identified in the process, in order to make a comparison of the results with the literature review.

2.8 The framework for data analysis

DP guidelines are prescribed by the Department of Health. Ten NHS trusts will be examined, and their DP guidelines compared to the guidelines as prescribed by the Department of Health. This comparison is made in order to gain an understanding of how closely the prescribed guidelines are followed, and if they are followed closely why the problems of DP still persist. If they are not followed closely, an understanding of why the guidelines are not followed will be sought. Statistics will be collected from the Department of Health and from the National Statistics Agency. The statistics are populated in the form of graphs in order to gain a better understanding of the numbers. The responses of the questionnaire from patients will be collated and compared to responses from the Care Quality Commission.

The responses obtained from doctors and GPs are used to understand the knowledge requirements of healthcare personnel, which along with the interview responses from the administrative staff, patients, carers, doctors and nurses is analysed using GT to identify themes. The themes will then be further analysed using a RCA and a Pareto analysis then carried out. The Pareto Analysis will narrow in on the key areas requiring immediate attention to mediate the problem with DP.

2.9 Conclusion

The model will be developed and validated in the Christie Trust cancer hospital and among staff at the SSST, whose areas of concern are mental health patients and patients with diabetes. The model although being developed and validated in these areas, will be capable of being customised and generalised for DP as a whole in any hospital setting. This chapter reviewed the research methodology used to design and carry out the research. The next chapter reviews literature on the NHS and DP.

Chapter 3. A review of Discharge Planning in the NHS

3. Introduction to the NHS

Chapter 2 provides a framework for the method in which the research will be carried out. Chapter 3 examines the NHS structure and processes and reviews DP and the consequences of inadequate DP. The NHS, a publicly funded organisation, provides healthcare for all UK citizens (currently more than 62 million people) based on their healthcare needs rather than their ability to pay for it (NHS, 2012a). The NHS is divided into primary and secondary care (NHS, 2012a). Primary care (PC) is comprised of local care, i.e. NHS Walk-in Centres, NHS Direct, GP practices, dentists, opticians and pharmacists. Secondary care (SC) covers services such as inpatient and outpatient services, ambulatory hospital specialist care, inpatient and outpatient drugs, mental health care, emergency and urgent care, NHS Trusts, learning disabilities, rehabilitation and care trusts for after-care for older patients after discharge (Boyle, 2008; Waring et al., 2014a).

Patients requiring further attention are usually transferred from PC to SC. Both PC and SC have links between one another and cannot exist without the other (NHS, 2012a). The sharing of information about a patient between PC and SC is therefore important. The NHS has grown since it was launched in 1948 and is continuously growing in size and complexity (NHS, 2012a) although many trusts are now restricting the services that they offer (The Guardian December 2013). The number of stakeholders involved in the NHS is therefore growing and so is the ageing population of the UK. The growth in size, complexity and the number of chronic diseases (e.g. obesity and diabetes) is causing an increase in demand, processes and planning in the NHS (NHS, 2012a).

3.1 Hospital discharge and Discharge Planning

The discharge of inpatients will be the focus of this study, as inpatients are admitted to hospital, stay for their treatment and undergo DP. Outpatients however, are usually treated and medication is prescribed on the same day (NHS, 2012a). Discharge takes place when a patient (i.e. an inpatient) leaves an acute hospital and returns home or is transferred to a rehabilitation facility or an after-care centre such as a nursing home (NHS, 2012c). According to Johnson & Nile, (2011) DP should commence as early as possible in order to facilitate a smooth discharge process.

3.2 The importance of Discharge Planning

DP facilitates patients in moving from one healthcare setting to another, to home or to a care home. It begins on admission and is a multidisciplinary process involving physicians, nurses, social workers, and possibly other health professionals (Sg2 Healthcare Intelligence, 2011). It is obvious that after discharge the last thing that most patients want is to be readmitted into hospital. However, the 'revolving door' of hospital admissions seems to result in poor DP and transition processes (Yam et al., 2012; Dipple, 2014). A reliable DP that incorporates post-discharge support is vital for ensuring a quality transition between modes of treatment, for reducing premature discharge or delayed discharge, for reducing readmission rates and for improving health outcomes(Institute for Healthcare Improvement, 2011; NHS England, 2014).

Admission to hospital can be a worrying time for patients and their families, and it is likely that both the patient and family will want to know when they can return home, what further care is required, what medications they should take, how they can prevent a possible admission in hospital and other such concerns (Grace Care Ltd, 2012). Therefore, ensuring the careful planning of patient discharge ensures that the patient and family are regularly informed about the DP process and eases their worries. The discharge of a patient is an essential component in care management in any healthcare setting, ensuring that the healthcare and social care systems are proactive in providing support and information to patients, families and carers while in hospital and after discharge, either their home setting or to a care home (NHS Institute for Innovation and Improvement, 2010). As stated in Chapter 1, 'discharge from hospital is a process and not an isolated event' (Mudge, 2003), and DP is the beginning of a patient's convalescence.

The better the DP process and the more informed the discharge plan, the smoother will be the convalescence of the patient, as an effective DP ensures that the patient, his or her family and carers are collaboratively involved in the process and ensures that they are equipped with the knowledge they need for an effective convalescence. In a recent statement regarding the ombudsman's report that presented a summary of investigations between April and June 2014, Dame Julie Mellor the current Parliamentary Commissioner for Administration and the Health Service Commissioner for England stated,

'We are increasingly concerned about patients being discharged unsafely from hospital. Unplanned admissions and re-admissions are a massive cost to the NHS' (Anon, n.d.).

Not all patients' recovery may be a smooth process, however, but a well-designed discharge plan ensures that the patient, families and carers are aware of the situation and are aware of what signs and symptoms to monitor. Careful DP also ensures that resources in a healthcare system are used efficiently (NHS Institute for Innovation and Improvement, 2010; Institute for Healthcare Improvement, 2011).

Better DP can provide advantages to the various 'stakeholders' of the DP process i.e. patients, their families, healthcare personnel and the healthcare organisation as a whole (Mudge, 2003; NHS England, 2014). Based on secondary research, these benefits are tabulated in Table 3, and they depict an ideal situation of DP, where if the processes are better organised, the benefits it brings to all stakeholders will be increased. Table 3 also highlights the key areas that require focus, in order to ensure that the 'strands' of DP are aligned appropriately, such as:

- Patient and carer involvement and empowerment;
- improved patient planning processes;
- healthcare personnel being presented with the right information at the right time to make informed decisions;
- awareness of the stakeholder's roles and responsibilities and meeting of targets.

These key areas align with Figure 1, which highlights some of the factors that need coordinating in order to ensure a good discharge plan, and key areas requiring focus when DP also corresponds to the fragmentation of processes due to reasons as described in Section 1.2.1 and 1.2.2. The data collected sets the path for the research, as it informs the researcher about the areas requiring investigation and highlights the stakeholders. Chapter 5 will present the results from the research carried out in the NHS setting, and present the actual situation and satisfaction levels of the stakeholders in comparison to the ideal benefits a good discharge plan can bring to these stakeholders.

3.3 Discharge Planning guidelines by the Department of Health

The Department of Health (DH) has created a general outline of guidelines for effective discharge procedures, listed in Table 4. Based on the guidelines, patient and carer needs appear to be considered, and their involvement in the DP process is emphasised. However, a clearly defined process indicating:

- The knowledge required for an action;

- the sources of the knowledge;
- efficient means of retrieving knowledge;
- the emphasis on knowledge sharing and communication within departments in the NHS and the sequence of actions appear to be lacking.

This however could be as the guidelines are a framework on which individual trusts build their admission and discharge policies on. A summary of the discharge policies and how discharge is carried out in the NHS trusts will be described in the following sections.

Stakeholder	**Benefit**
Patient	Needs are met
	Maximised independence
	Patient empowered and actively involved in the planning process
	Do not experience unnecessary gaps or duplication of effort
	Understand their care plan
	Experience care as a coherent pathway, not a series of unrelated activities
	Feel supported and have made the right decisions about their future care
Carer	Feel like partners of the DP process
	Their knowledge has been used appropriately
	Are aware of their right to have their needs identified and met
	Feel confident of continued support in their caring role and get support before it becomes a problem
	Have the right information and advice to help them in their caring role
	Are given a choice about undertaking a caring role
	Understand what has happened and who to contact
Healthcare personnel (doctors, nurses, administrative staff)	Feel their expertise is recognised and used properly
	Receive key information at a timely manner
	Understand their part in the system
	Can develop new skills and roles
	Have opportunities to work in different setting and in different ways
	Work within a system that enables them to do so effectively
Healthcare system	Resources are used to the best effect
	Service is valued by the local community
	Staff feel valued
	Meet targets and can therefore concentrate on delivery
	Positive relationships with other local providers of health and social care and housing services
	Avoidance of blame and disputes over responsibility for delays

Table 4. Ideal advantages of improved DP to all stakeholders in the DP process

Source: (Mudge, 2003; Anon, n.d.)

3.4 How discharge planning is carried out now

A review of discharge plans by several NHS trusts indicates that many of the trusts in their admission and discharge policy guidelines closely follow the guidelines as prescribed by the DH. The NHS trusts implement their own discharge policies while ensuring that they are closely aligned to the guidelines as prescribed by the DH. Several attempts have been made at improving discharge planning, and reasonable improvements have been identified (Lynch, 2011; Care Quality Commission, 2013; Anon, n.d.).

Department of Health Discharge Planning Guidelines
DP & transfer planning should commence before or on admission
Identify whether the patient has simple or complex discharge and transfer planning needs
Involve the patient and carer in the decision making process
Develop a clinical management plan for every patient within 24 hours of admission
Set an expected date of discharge or transfer within 24–48 hours of admission and discuss with the patient and carer
Involve patients and carers so that they can make informed decisions and choices that deliver a personalised care pathway and maximise their independence
Plan discharges and transfers to take place over seven days to deliver continuity of care for the patient
Use a discharge checklist 24–48 hours prior to transfer
Co-ordinate medication with pharmacy
Involve multidisciplinary team for the DP meeting
Ensure patient's needs e.g. food, groceries, etc are taken care of, or there is someone to take care of this
Interpreters arranged for patients with language barriers or speech disabilities
Patient, service users and carers involvement in the DP process
Coordination with nutritionist
Assign a social worker

Table 5. Guidelines for Discharge Planning by the UK Department of Health

Source: (Mudge, 2003; NHS Institute for Innovation and Improvement, 2010)

A rough discharge plan is currently drafted for patients upon entry to hospital according to their diagnosis and a tentative discharge date is provided. Changes are made over the course of the patient's stay and records are manually updated by nurses upon instruction by doctors. This results in confusion and sometimes even disagreement on discharge dates by different doctors treating the patient for different symptoms and even by nurses especially when a change in shift occurs (Williams et al., 2010). This could be bad for a patient's morale and confidence and therefore their health (Sg2 Healthcare Intelligence, 2011). The effect on the domestic arrangements of carers needs to be considered. In their discharge policies NHS trusts essentially attempt to ensure that:

- Discharge commences upon admission;
- patients' needs are classified as simple or complex;
- patients and carers are involved in the decision making process; m
- medication is ordered from pharmacies;
- an expected discharge date is decided within 24 to 48 hours of admission;
- the multidisciplinary care team is involved;
- the nutritional pathway may be co-ordinated;
- social workers may be assigned;
- patients home conditions are arranged;
- other guidelines as prescribed by the DH are followed.

To try to ensure that these factors are considered, many NHS trusts use a discharge checklist with questions to ask patients and to make notes. An example of the discharge checklist used by nurses in the Tameside Hospital NHS Foundation Trust (Tameside Hospital NHS Foundation Trust, 2012) can be found in Appendix C. The discharge checklists of many other trusts are similar, as they follow the underlying guidelines provided by the DH (NHS Institute for Innovation and Improvement, 2010). It can be seen from the checklist that questions are usually asked about a patient's mobility, social circumstances and nutritional intake. Carer involvement is highlighted and transport arrangements are listed to be checked in the discharge policy. However, an indication of how to measure the outcome of the checklist is not presented, for instance:

- What 'boxes should be ticked'?
- In the event that a particular box is not ticked what actions should be triggered;
- the sources of knowledge in order to make an informed decision;

- evidence of sharing of knowledge between different departments;
- the action to take in the event that a change in nursing shift occurs.

Healthcare personnel (e.g. doctors and nurses) evaluate the results on the sheet and from their experience make a decision about whether the patient should be discharged or not. Questions such as a patient's and carer's readiness for discharge, an indication of how to communicate the information to patients and carers, providing patients and carers with information about their prognosis, symptoms, nutritional and exercise recommendations was lacking. Information that would help a patient's convalescence at home seems to be lacking in the discharge policies of the NHS Trusts that are examined. In Chapter 5, the discharge policies of ten NHS Trusts are compared to that of the DH guidelines in order to determine if all the ten trusts closely follow the guidelines in their discharge policies. The primary research will determine if the policies are put in to practice as policies list out best practices. However, the predominant reports in the popular press (see Table 1) indicate to some extent the haphazard nature of the discharge process, resulting in problems such as increased emergency readmissions, delayed discharge and other such complications. The RCA in Chapter 5 highlights the root causes of the problems that prevent discharge from being carried out in a smooth and effective manner.

This research therefore investigates both the statistics as reported in the media and the statistics published by the DH and analyses the results obtained from primary research in two NHS Trusts (i.e. the SSSHT and The Christie Trust). The results obtained from the different sources are analysed, a comparison is made and possible themes are identified to indicate the current knowledge gaps that exist in the way that DP is currently carried out in these trusts. The problems that these gaps pose are analysed and a KM model is constructed as a solution, based on a KM theory developed through GT in order to ensure the areas that are currently overlooked are taken into consideration when planning a discharge pathway for a patient. This is presented in Chapter 6. The KM-based model is intended to ensure that the people, processes and technologies are aligned in such a way that the right people get the right information at the time when it is needed. It will be used to break down the current silos that exist between departments of the same trust and between NHS Trusts and primary and secondary care functions (Department of Health, 2011; Waring et al., 2014b).

Patient discharge planning requires looking at the system as a whole and not as isolated units i.e. a holistic approach. Having patient information available for viewing at one location is vital for this, as reducing variation in flow (i.e. the transfer of patient between wards, to a care home or the discharge of a patient to a home environment) has been shown to improve overall patient flow (Institute for Healthcare Improvement, 2011).

3.5 Healthcare personnel roles and responsibilities in DP

Healthcare personnel responsible for the discharge of patients include medical staff and nurses. The stakeholders in the DP system were therefore found to include the following:

3.5.1 Medical Staff

Medical staff/consultants are responsible for determining if a patient is medically fit and ready to be discharged. The medical staff can allocate the responsibility of discharge to nurses, as discharge by consultants would result in delays, due to waiting caused by the ratio of consultants to patients. Medical staff identify details on patients prescriptions and fill in discharge summaries which are sent to both the GP and patient when a patient is discharged (Burton Hospital, 2010; Tameside Hospital NHS Foundation Trust, 2012; NHS, 2012e; Smith, 2011).

3.5.2 Nurses

Nurses are responsible for the overall co-ordination of DP. They assess health, social care needs, check that the prescription of the patient is dispensed and ensure that patients have a discharge date set. Different nurses have different responsibilities according to their qualifications and experience. Nurse Managers and matrons are responsible for monitoring the safe discharge of a patient and sharing among the team ‘lessons learned’ from the way the process operates. Ward managers ensure that discharge takes place according to the trust’s policy. According to the policy guidelines both nurses and ward managers are responsible for ensuring that, upon a change of shift, details about the patient’s admission and discharge is passed onto the next shift, allowing for a smooth discharge (Smith, 2011; Hampshire Community Healthcare, 2011; Penny, 2012).

3.6 Stakeholders in Discharge Planning

The people involved in the DP process (i.e. the stakeholders) include patients, their families, carers, doctors, nurses, and administrative staff are the people involved in the DP process. Their active involvement is important in DP, because the the knowledge they have is important for making informed decisions about the discharge plan.

3.6.1 Patient involvement

The knowledge held about patients currently used in DP includes the information in the discharge checklist as in Appendix C. Information such as a patient's past medical history, the medication they used to take, their vital signs, their learning disabilities, their mental health, their breathing rate is used by healthcare personnel to make a decision regarding a patient's discharge. Patients should feel that they are involved in the DP process and they should feel that their needs have been taken into consideration (Mudge, 2003; Waring et al., 2014b). In practice the required knowledge may include information that is not included in the current checklist. For instance, in the discharge checklist in Appendix C there is no indication of asking patients if they feel ready to be discharged, if they have someone to take care of them at home and the checklist lacks the encouragement of engagement with patients, and using the knowledge about the patient to help make informed decisions with regards to the patients DP.

In 2011, the qualitative study of patient experience of discharge from hospital to the community that was jointly commissioned by Birmingham and Solihull Links reported that, emergency readmissions cost the NHS 2.2billion annually (Lynch, 2011). Improving communication policies would reduce the burden of the cost born annually by the NHS (Lynch, 2011). Involving patients and carers in the decision making process and planning of their care improves services and outcomes in terms of readmissions and patient satisfaction (Lynch, 2011). It has also been stated by the DH that patient involvement 'promotes more responsive services and better outcomes of care' (Mudge, 2003; NHS Institute for Innovation and Improvement, 2010; Institute for Healthcare Improvement, 2011; Lynch, 2011).

Having access to information about their condition, the treatment that is available and the services that are available is crucial to the ability of patients and their carers to contribute to the decision-making process about their discharge and care plans (Lynch, 2011). It is therefore further emphasised that in order to empower a patient and for discharge plans to be personalised, patients need to be provided with knowledge of their health records, an understanding of their condition, treatment facilities available, post-treatment care and symptoms. It is crucial to ensuring that patients are informed for meaningful involvement in the planning of their discharge and ongoing care and convalescence (Lynch, 2011; NHS England, 2014).

There are discrepancies between the views of healthcare professionals and patients' actual experiences with regards to the adequacy of the information provision (Worth et al., 2000). What a healthcare professional might deem as being sufficient might not be sufficient for a patient who may have further concerns that need to be allayed. Being able to provide patients and their carers with answers to their questions is important, as this reduces the anxiety faced by both patients and carers, and in some instances the anxiety faced by patients could worsen the condition and result in emergency readmissions (Mudge, 2003; Institute for Healthcare Improvement, 2011; Sg2 Healthcare Intelligence, 2011). There are many factors that need to be accounted for when planning the discharge of a patient. Currently there is a knowledge deficit in the process. Despite the NHS being rich in information, it is poor in knowledge (Abidi, 2008). Patients require more knowledge, ensuring they return home or to a care facility feeling engaged and empowered in order to give them confidence and a sense of well-being. When some patients feel left out of the DP process their symptoms are exacerbated, requiring them to visit the doctor repeatedly and perhaps even being readmitted to hospital (Sg2 Healthcare Intelligence, 2011; Kiely & Green, 2011b; Institute for Healthcare Improvement, 2011).

Some of the questions asked by patients include (Mudge, 2003):

- ‘What do the doctors think is wrong with me?’
- ‘If I need help, how much will it cost and how do I get it?’
- ‘How will it help me?’
- ‘How do I use the equipment? Do I really have to use it? I don’t have room at home for storage…’
- ‘How can I use my bathroom it it’s upstairs?’
- ‘How can I do my shopping now?’
- ‘Can I get transport?’
- ‘How long will I have to stay in hospital?’
- ‘Can I drive? Work? Look after my family?’
- ‘Maybe I would like to talk it over with my family before I decide’.

The question that arises here is how much information is ‘enough information’ to provide the necessary knowledge to make decisions about a patient’s discharge. Realistically, healthcare personnel are under time pressure and have targets to meet. Currently as a result of being very target-focused, the problems which have been previously discussed (e.g. emergency readmissions) can arise. What healthcare personnel might regard as being ‘enough knowledge’ might not be enough for a patient, for instance due to the difference in the patient’s and carers’ understanding. A mid-point therefore needs to be met, a methodology by which healthcare personnel can provide patients with the information they need in a way that they can easily understand and make sure that they are further supplemented with information to help them with any doubts that might arise. Even basic information such as contact information and links to website for further reading, downloadable podcasts or webinars (Sg2 Healthcare Intelligence, 2011; Delen & Al-Hawamdeh, 2009).

It is therefore important to elicit from patients and carers the information they need and want from healthcare professionals, to peruse the conversations they have with healthcare personnel expressing their concerns and feed those concerns into the discharge plan. To ensure that a note is made that a particular patient has a concern regarding a particular problem and to ensure that they are provided with the needed information for their concerns to be allayed and reassurance provided to them upon discharge. The concerns of patients that healthcare personnel have encountered in their experience can be documented and categorised according to concerns for various conditions and reused in the future when patients with similar ailments or conditions are being treated. This translates to and results in a more personalised approach to treating patients, and ensures that the tacit and implicit knowledge possessed by the healthcare personnel, the patients and carers are captured and made explicit (Sveiby, 2001; Hicks et al., 2002).

3.6.2 Carer involvement

Government policy states that ‘at the time of discharge, carers must be fully informed and involved in the planning of future care of the patient; so that assumptions aren’t made about their willingness to care’ (Lynch, 2011). Carer involvement not only provides useful knowledge that can be useful for the DP process, but also affects a person’s physical and psychological wellbeing (Henwood, 1998). Carers and patients might have different needs and requirements and carers are entitled to a separate assessment (Mudge, 2003). Despite having literature that highlights the importance of patient and carer involvement in the DP process, this involvement seems to be lacking based on the reports in the media. It is one of the purposes of this research to ascertain the veracity of these reports (see Section 1.6). When carers understand their role in the convalescence of the patient, along with good understanding of the patient themselves, the small levels of care can prevent expensive hospital care and more expensive social care (NHS Scotland, 2013).

3.6.3 Healthcare personnel involvement

A mismatched perspective appears to exist between hospital and community staff. A national study of community staff presented strong criticism by district nurses and GPs of the failure of hospital staff to provide adequate information consistently, either to them or to patients (Worth et al., 2000). A general theme of lack of accountability amongst healthcare personnel emerges from the literature reviewed (Worth et al., 2000).

Knowing what information patients and carers need when planning discharge is important, and knowing what information is needed by healthcare personnel in order to plan discharge is equally important. This is because when it comes to making decisions, having to pursue other departments or people for the information results in delays. In a survey nurses criticised care managers, occupational therapists and doctors in acute settings for not interacting without being ‘chased’ or ‘badgered’ and they described this to be an extremely time consuming process (Atwal, 2002). The nurses also stated that calls were not returned and responses were only obtained when specifically asked. Due to the time pressures, and the need to meet targets (Godden et al., 2009) some vital information or key areas may be overlooked. Therefore aggregating the information needed (in the form of a portal, for instance) brings together the knowledge needed by healthcare personnel (Nemeth, 2007). The portal can be designed in a way to take suggestion from healthcare personnel for continuous improvement, therefore as healthcare personnel search for information that is not present, the system can record the frequency with which the search was made and can make suggestions to ensure that this information is added in the future, thus providing healthcare personnel with real time information needed to make informed decisions with regards to patient care and DP (Woodcock, 2011).

The detrimental effects of the lack of communication between healthcare personnel are further exacerbated during shift changes. It has been reported that there is a general ‘lack of communication’ in the wards when one team of nurses takes over from another. Shift changes have been compared to Chinese whispers and that by the time it had been communicated to the night shift many things were ‘forgotten about’ (Atwal, 2002). It is important that nurses adopt a more patient-focused role to patient care and DP and that nurses assume accountability and voice their opinions. It has been documented that in some healthcare situations, even when a matter of life and death is involved, nurses have been known to refrain from sharing their opinions (Atwal, 2002). It is becoming clear that the roles of healthcare personnel need to be more clearly defined and their areas of involvement, level of involvement and the nature of the information that they are accountable for acquiring and feeding back into the DP process is important. By encouraging such a ‘sharing’ culture, accountability is embedded within the culture and healthcare personnel will not feel afraid to voice their opinions, should they have encountered a situation where they feel their feedback might add value to the decision-making process.

3.7 Barriers to effective DP

Much of the activity in healthcare involves charting and paper-based activities. Information that is collected by healthcare personnel is noted on paper in many NHS Trusts and at the end of a week healthcare personnel are faced with the burden of paper work (Burton Hospital, 2010; Sg2 Healthcare Intelligence, 2011). This results in the inability to analyse the information and to capture efficiently the knowledge that exists and some information might even be lost (Institute for Healthcare Improvement, 2011). It is suggested that the use of informatics may be a solution. Informatics is the use of information and communications technology (ECT) and information management tactics to enhance process efficiencies (Informatics, 2009).

Hospitals are hampered by many processes including ‘backend’ processes which patients do not see. Different departments can be involved in a patient’s discharge, which requires the sharing of information between departments in a timely manner. In order to provide patients with the best treatment, while efficiently managing costs and resources in the NHS, technologies such as clinical portals and electronic health records can be implemented (Knott, 2012; Nemeth, 2007; Al-Mudimigh et al., 2010). This can result in faster, smarter, more accurate personalised DP. In a connected society ICT, the World Wide Web and search engines have all become an indispensible part of working life and have transformed the way that knowledge is shared and created (Johnston, 2002) and nformation architecture and organisation is important to enabling its easy access (Goldberg & Crescent, 2002; Malhotra, 2000). Poor information sharing between departments can result in errors such as laboratory test errors, medication errors, communication error and wrong diagnosis (National Patient Safety Agency, 2012), all of which jeopardise a patient’s safety. Patient safety involves identifying, analysing and managing patient related risks and incidents, making patient care safer and minimises harm to the patient (National Prescribing Centre, 2013; The National Advisory Group on Safety of Patients in England, 2013).

> ‘*The vast majority of NHS care is safe, but mistakes do happen, sometimes with tragic consequences. We can only prevent these problems if we learn from what goes wrong.*’
>
> (National Patient Safety Agency, 2012).

For efficient DP to be achieved, the information required for informed decision making should be organised in such a way that the required information is collected, stored, distributed and used by the people requiring the information at the time that it is required (Nonaka, 2007a; Wiig, 2002). This allows for data and information to be aggregated and processed to generate knowledge which as a result allows for more intelligent and informed decisions to be made, this improving DP with insight (Nonaka & Lewin, 1994; Johnston, 2002; Grant & Grant, 2008).

The processes in the NHS relating to DP can be likened to a Swiss cheese with many gaps or holes, indicating the silo-based way in which the different departments operate. This research intends to smooth out the processes and ‘cheddar the DP process’, turning data into insight, insight that can help make multidisciplinary meetings more interactive, allow faster reaction times, enhance information sharing between departments real time, allowing clinicians to react quickly and allow for better decisions to be made while clinicians are at the point of decision making (Kamalanathan & Eardley, 2015) Synthesising the information provided by the various stakeholders of the DP process and information about patients relevant to the decision making process is vital to ensuring errors such as the lack of considering peripheral medical factors of a patient, which may result in a patient being readmitted if left out. Some examples of the factors involved in a patient not being considered can be found in Section 3.9.1.

The aim of DP is to enhance continuity of care while optimising the use of healthcare resources. DP has significant implications for a patient’s recovery, the effectiveness of hospital management processes and the efficient use of medical resources. The complexity of the discharge process implies that careful planning is needed to make the process effective (Shepperd et al., 2010). It is recognised that the problem may currently lie in a lack of appropriate DP upon admission. Hospitals suffer from the inability to deliver timely care and from performance efficiency. There is a mismanagement of resources and time as different teams operating in the operating theatre; ward and community often repeat the same practices and develop new methods repeatedly, rather than sharing what they know through reliable national networks so that they can learn from each other (Bali et al., 2002).

As sources of information (and therefore of accumulated knowledge) patients, carers and information are the most under-utilised resources currently held by the NHS (Hannan, 2011). It is the patients who are faced with the symptoms and the carers who look after the patients who hold the knowledge that is most valuable to making decisions, which unfortunately is currently overlooked. Each patient has a unique problem and personalising the discharge process will reduce the current problems faced in DP. Ensuring that patient and carer involvement commences at the beginning of DP is important, as their involvement determines the coordination of resources that will be needed for the patient upon discharge at an earlier stage. Triggering the co-ordination of resources and communication with care agencies at an early stage is important for preventing problems such delayed discharges caused by a patient having recovered but having nowhere to go due to lack of availability of a care home. If the communication process and the co-ordination of resources occurs at an early stage it minimises delays in discharge, ensuring that a care facility is allocated to the patient as it allows care homes and carers sufficient time to make the necessary arrangements and to make the necessary resources available (Mamon et al., 1992; Family Caregiver Alliance, 2012; Kripalani et al., 2007; NHS National Services Scotland, 2012; NHS England, 2014).

3.8 Factors contributing to inadequate discharge planning

DP is critical to ensuring the rapid, safe and smooth transition from hospital to another care environment. In consequence, any effective and usable DP system needs to address the complex needs of patients, their families and the health care system for optimum functioning. A variety of factors such as internal, external and psychosocial factors contribute to inadequate discharge planning as shown in Table 5 (Great Britain. DP and ALC Policy Task Team. 2006). Table 5 corresponds to the literature obtained and to the press reports in Table 1. Examples of internal factors such as the failure to consider the patient and carer perspectives and inadequate communition within hospital personnel further justifies the areas for research that were highlighted as lacking in current DP procedures as described in Section 3. Nonaka & Toyama, (2003), state that, ‘In knowledge creation, one cannot be free from one’s own context’. This implies that, when looking at DP in a hospital setting, the inter-related factors need to be taken into consideration in the decision-making process because the various factors and context provide a basis for creating meaning and to aid in the decision making process (Dervin 2003). The primary research in NHS Trusts may reaffirm the factors identified in Table 5, it may highlight possible additional factors if such factors exist and these factors will help build on the development of the proposed model.

Factors	Examples of symptoms/effects
Internal	Waiting for discharge summaries
	Waiting for declaration of chronicity
	Transfer between nursing units
	Lack of documentation of discharge plan
	Insufficient interagency collaboration, poor communication between the hospital and providers of services in the community
	Inadequate communications within hospital personnel
	'Cost shunting'
	Failure to consider patient and carer perspective
	Failure to consider local setting
	Poor knowledge of patients social circumstances
	Late booking of transport
External	Lack/delay of access to rehabilitation
	Convalescence is compromised
	Palliative care is ineffective
	Poor home care resources
	Long term care facility
	Caregiver inadequacy
	Insufficient physical assessment or monitoring by care provider
	Failure of home care provider to report finding to doctor
Psychosocial	Waiting for family adjustment to illness
	Waiting for patient function to improve
	Unrealistic expectations of patient/family
	Social isolation of patient
	Inadequate support at home
	Lack of concrete medical aids
	Transportation for treatments
	Fear of financial impact on the part of patient
	Family burden prevents discharge home
	Poor patient compliance

Table 6. Internal, external and psychosocial factors contributing to poor DP

Source. (Discharge Planning and ALC Policy Task Team, 2006)

3.9 Problems emerging from inadequate discharge planning

The convalescence of a patient is an essential component in healthcare quality and DP is a key factor in a patient's recuperation after treatment (Wickramasinghe & Mills, 2001). The discharge of a patient can be considered as the beginning of convalescence, it ispart of a process and not an isolated event, and has a major impact on patients, their families and the carers involved. It also has implications for resourcing in the healthcare, social care and other support services. A preliminary review of the problem from sources such as press reports, anecdotal evidence and literature from the NHS suggests the problems resulting in inadequate DP are:

- Insufficient personalised patient knowledge;
- lack of informed decision making;
- focus on targets;
- insufficient holistic approach;
- lack of resource coordination and a lack of communication.

These factors are reported to have resulted in delayed discharge and increased emergency readmissions. The consequences of delayed discharge and emergency readmissions are reported to include bed blocking and long waiting lists, all of which affect the admission, transfer and discharge of a patient. The factors contributing to poor DP results in one or more of three common problems with admission, transfer and/or discharge (Shepperd et al., 2010; McMurray et al., 2007; Johnson & Nile, 2011; NHS, 2012b). The problems of inadequate DP from the literature review are succinctly identified in a diagrammatic representation in Figure 6. Delayed discharge, bed blocking, long waiting lists and increased emergency readmissions are shown in this literature search to be a consequence of inadequate DP (Shepperd et al., 2010; Royal College of Physicians, 2010; Department of Health: Media Centre, 2011; Sg2 Healthcare Intelligence, 2011). These factors will be further investigated in this research and will be further developed in Chapter 5, based on the results of the primary research.

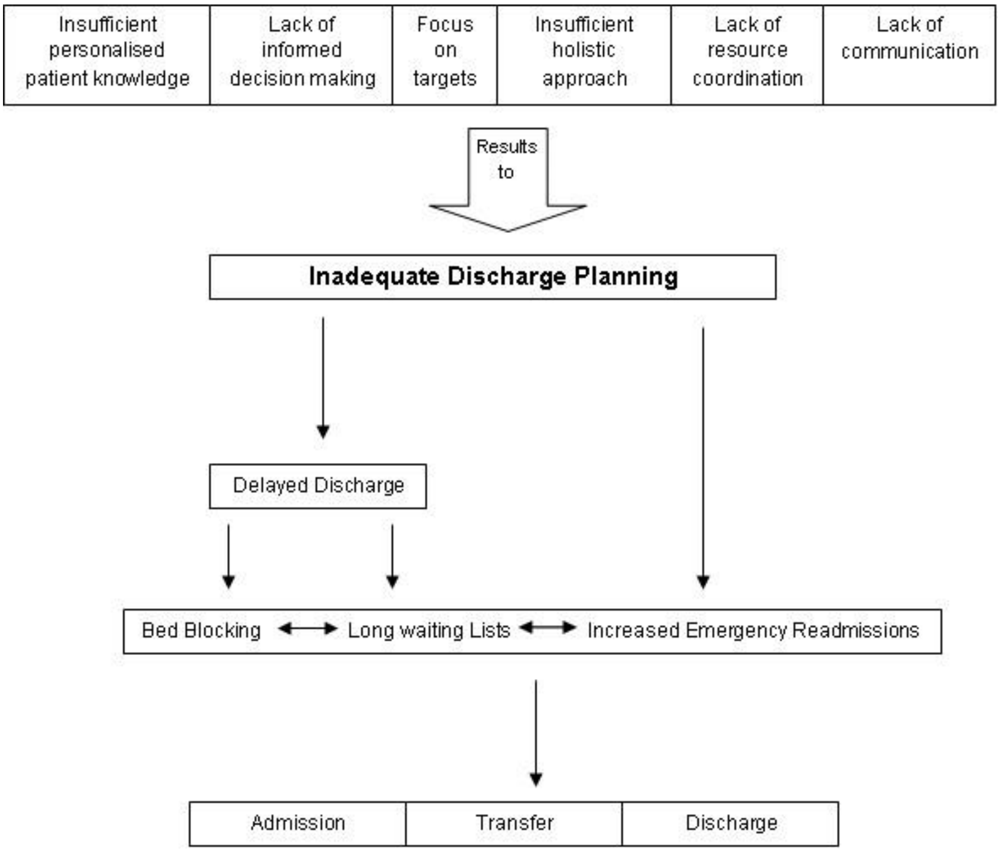


Figure 6. The problems resulting from inadequate DP

The inability to coordinate in a timely fashion factors, thus resulting in inadequate DP, has resulted in increased emergency readmissions (which is a consequence of discharge before a patient is ready to go home) and delayed discharge, which are different sides to the same problem (i.e. inadequate DP). Most instances of inadequate DP result in compromised patient satisfaction and reduced quality of care (Williams et al, 2010). Appropriate DP bridges the gap between a patient's stay in hospital and his or her return home or to an after care service and is affected by the length of stay in hospital, the treatment methodology and the approach undertaken (Shepperd et al, 2010).

3.9.1 Increased emergency readmissions

Increased readmissions, a complex situation caused by a variety of factors, reflect poorly on patient management. Increased emergencey readmissions commonly occur when patients have been discharged too early. This is a consequence that results when hopitals are trying to achieve targets rather than providing quality healthcare. Andrew Lansley (Secretary of State for Health 2010 – 2012) announced in June 2010 that emergency readmissions have increased by 50% over the last ten years and this is not primarily due to patients becoming more frail but because hospitals have been given incentives to cut the length of patients'stay and to send patients home sooner after treatment (Royal College of Physicians, 2010). In order to tackle the issue, a holistic approach needs to be adopted, by looking at the 'entire patient' (Roberts, 2010). When the reasons for emergency readmissions to hospital were examined, poor communication between hospital and community support organisations was identified as a main cause of problems (Lynch, 2011). It was also found that insufficient information was passed on to care agencies such as:

- Whether or not a patient has diabetes;
- The patient's nutritional requirements,
- The patient's previous treatments;
- any medications to which the patient may be allergic;

Such factors, if overlooked, could have effects that can result in a patient requiring admission into hospital in a hort period of time (Hogan et al., 2012; The National Advisory Group on Safety of Patients in England, 2013).

An example of the consequences of having insufficient information about a patient is discussed in Calkin (2013). In this case an elderly male patient who was admitted for a routine hernia operation had been diagnosed as having Alzhiemer's disease some years before by a different Healthcare Trust. The patient was approached by medical staff the day after the elective surgery and was asked if there was anyone at home to take care of him and to supervise her convalesence, to which the patient responded that his wife was at home, was a retired nurse and was his regular carer. The patient was then discharged and was taken home by transport organised by the hospital. The house was found to be empty, but the patient explained that his wife had probably gone to the shop. He was then made comfortable and was left by the ambulance crew. The elderly man was later found dead by neighbours, because in fact his wife had died almost 10 years ago and he was cared for by friends and relations (Calkin, 2013) from revealing this to the medical staff. The significant 'gaps' in the knowledge of the medical staff in this case are:

- The medical staff in the surgery ward did not know about the patient's Alzheimer's disease, although this clearly would have an effect on his discharge;
- the medical staff also did not know about his personal circumstances (i.e. that he lived alone and was cared for by friends and relatives);
- the patient's carers (i.e. his friends and relatives) were not informed that he was to be discharged, in fact their contact details were not known to the medical staff, although they

> had visited him during his hospitalisation (it is believed that he had given his dead wife's name as 'next of kin').

A survey of the literature giving the reasons for readmission gives mixed information. A study by The Royal Pharmaceutical Society of Great Britain, in 2006 found that between 19% and 23% of patients who were discharged experience an adverse event after discharge. It is suggested that 60% of unplanned readmissions could be avoided by more effective action at the time of discharge. Kaiser Permanente reported in December 2010 that most readmissions are for a reason different than the original admission, with only 5% being for the same reason and, of the patients who are readmitted within 30 days, 30% pass away within 6 months in the UK (Wilson Evans Consulting Limited. 2011). Dr. Anna Dixon of the King's Fund, however, states that a lack of proper care provision in the community results in increased emergency readmissions, while Dr. Hamish Meldrum of the British Medical Association expresses the opinion that a range of reasons exist for a patient's readmission, many of which are beyond the control of the hospital (Roberts, 2010). Based on statements by the respective health authorities a summary of reasons contributing to increased emergency is listed as follows:

- The quality of in-patient care;
- Transitions from acute to community and primary care;
- the availability of community resources for follow-up care;
- a patient's personal characteristics and attitude;
- a patients ability (or otherwise) to afford home care;
- the home and support environment into which the patient will be discharged.

To address the issue of readmissions, requires complex, clinically focused, solutions based on communication and collaboration between commissioners, acute, primary care and community providers, and social services (Sg2. 2011).

3.9.2 Delayed discharge

A delay in discharge occurs when,

> *'...an inpatient who has been judged clinically ready for discharge by the responsible clinician in consultation with all agencies involved in planning that patient's discharge, and who continues to occupy the bed beyond the ready for discharge date.'*
>
> (NHS National Services Scotland, 2012).

Delay in discharge compromises the quality of patient care and reflects a lack of efficiency and effectiveness within the continuum of care and service c-oordination (DP and ALC Policy Task Team. 2006). The reasons linked to delayed discharge include the following (NHS Scotland, 2013; Kiely & Green, 2011b; Department of Health, 2012; NHS National Services Scotland, 2012):

- Too many patients admitted to hospital, despite viable alternatives;
- patients moved inapproipriately around between wards;
- a lack of process and process delays which are compounded by system problems;
- discharge planning does not commence upon pre-admission or admission;
- lack of accountability by healthcare personnel in charge of planning discharge;
- working beyond competency. Having the right healthcare personnel at the point of decision making is crucial to prevent a wrong diagnosis or overlooking particular symptoms;
- poor communication between healthcare personnel and poor informaiton sharing between departments;
- a lack of multidisciplinary team decision making process;
- patient informaiton is not constantly reviewd by healthcare personnel and patient not involved earlier on in the discahrge planning process;
- patient symptoms and developments not tracked sufficiently and used for discharge planning;
- poor communication between healthcare personnel and patient;
- poor inter agency communication;
- patients awaiting post discharge care facilities such as a care home, this takes place when arrangement for care facilities are not made well in advance;
- patients awaiting funding for additional treatment and, equipment and care services;
- target related behaviour. It is important that patient care does not sufffer as a result of ‘zero’ targets, and that patients are not rushed through the system to free up beds.

Figure 6 shows that the consequences of poor DP are interconnected. Emergency readmissions result in bed blocking and long waiting lists which affect delayed discharge and vice versa. The *‘front-door’ issues need to be addressed as well as the ‘back-door’* (NHS Scotland, 2013). Delayed discharge from hospital is caused by both medical and non-medical reasons, and 30% of all hospital discharges have been due to non-medical reasons (Shepperd et al, 2010). 20% of hospital stay was seen to be inappropriate and approximately 45% of these inappropriate hospital stays were mainly due to non-medical reasons (Panis et al, 2003). This therefore proves that the non-medical reasons such as after care, facilities to recover at home, and various other related reasons need to be investigated and considered in the proposed framework.

In a survey carried out by the Care Quality Commission of 64,505 participants from the age ranges of 16 years and older and a response rate of 51%, it was seen that when asked 41% of respondents said that on the day of discharge they experienced delay (Care Quality Commission, 2013). 38% said a member of staff told them medication side effects to watch out for when they went home, 41% of patients were told by a member of staff the danger signals they should look out for when they went home and 23% were not told who to contact if they were worried about their condition or treatment after leaving hospital (Care Quality Commission, 2013). Knowing the relevant medical conditions of a patient is important during admission and discharge planning. For instance, a patient with dementia might have diabetes, however if the diabetes is not checked and the patient given food and drink that could escalate blood sugar levels might result in the patient’s discharge being delayed due to further complications they might face (NHS Scotland, 2013; Bell, 2012). Delayed discharge has seen to pose a threat to a patient’s morale by causing problems such as depression, over- dependence on hospital staff and lack of confidence among others (Barton et al, 2010).

3.9.3 Bed blocking

Bed blocking occurs most frequently when patients awaiting discharge in wards are held back due to the volumes of paper work with which hospital staffs are excessively involved, (Barton et al. 2010) although other causes are not uncommon. Some patients are delayed from six to fifteen days, while many other inpatients awaiting treatment are made to wait or even declined treatment. There are instances of patients being admitted to hopital only to be sent home almost immediately, as a bed was not available due to blocking (Mackie, 2010).

3.9.4 Length of waiting lists

Longer hospital waiting lists usually result from to delayed discharge and a backlog of inpatients awaiting their turn to be treated (Anthony et al, 2005). This causes long waiting times and builds frustration amongst patients. If the average annual cost of an acute bed is £120,000, and approximately 6000 beds are occupied by patients who should have been discharged, annually the NHS wastes approximately £720 million (NHS Institute for Innovation and Improvement 2008).

3.10 Enablers of discharge planning

The NHS is presented with the challenge of minimising discharge delays so that patients spend a minimum amount of time in hospital,of reducing the number of available beds, of increasing admissions and at the same time ensuring that the number of emergency readmissions is kept to a minimum (Godden et al., 2009). Hence, one of the objectives of this research is to implement a KM-based model that will steer hospital staff towards making knowledge-based decisions, thus reducing the problems that emerge from inadequate DP as discussed in Section 3.9.

A review of the literature has identified some ways in which DP is currently being conducted, identified the silos of information that exist and the lack of efficient use of the knowledge that the NHS possesses at every level and at every part of the treatment process. The literature search therefore provides evidence for the urgency with which a KM model is needed to complement DP. Using knowledge as a means of arriving at informed decisions is not new to the NHS. Sir Muir Gray, the Director of the NHS National Knowledge Service and the NHS Chief Knowledge Officer says that 'Knowledge is the enemy of disease' (NHS Connecting for Health, 2012). Knowledge and KM is used routinely and successfully in various organisations such as Hewlett Packard, Siemens GMBH, The World Health Organisation, the US Army, Health Canada, etc.

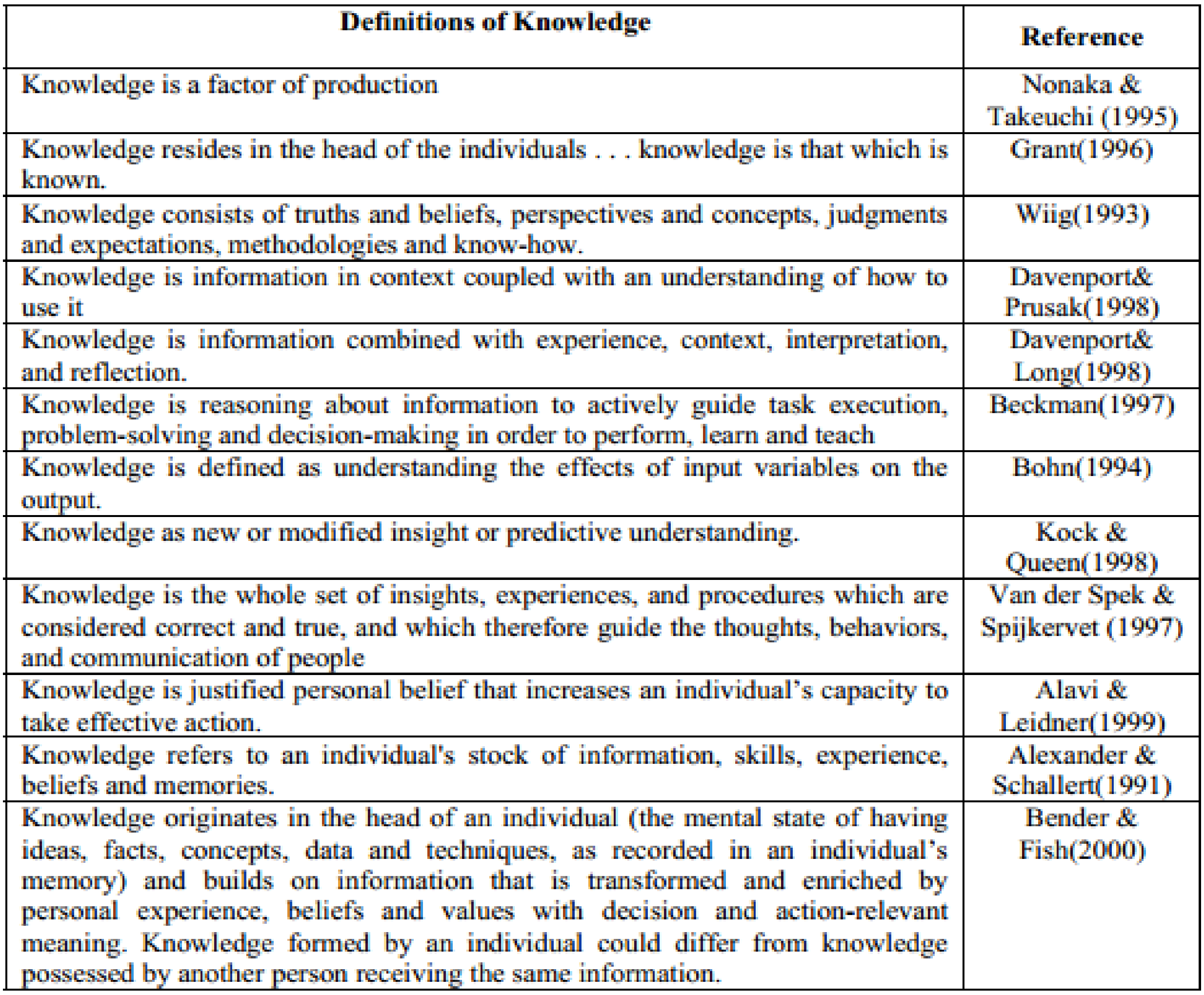
3.11 Conclusion

This Chapter reviews the academic literature on DP, the problems causing inadequate DP and the consequences of inadequate DP. The nature of KM and its use in DP are further investigated in Chapter 4, along with an examination of existing KM frameworks and models (Research Division Institute of Public Administration Ireland, 2010). The involvement of stakeholders and sharing of information DP seems to be a disjointed process, rather than a coherent pathway, because of the fragmented nature of processes. Chapter 5 can therefore examine further reasons why DP is fragmented through the GT primary research.

Chapter 4. A review of Knowledge Management Models and Frameworks

4. The origins of knowledge and Knowledge Management

In the previous Chapter, DP was defined and examined and the role of KM was introduced. This chapter will further explore Knowledge, KM and the role of KM in DP. The pursuit of knowledge is an old quest dating back to historic times where philosophers and scholars tried to understand human behaviour, religion, philosophy, science and creation (Wiig, 1999). They passed their knowledge on in the form of scriptures, apprenticeships, teachings and books. Human knowledge is such that a person knows more than can be told and an example is the ability to relate certain smells or songs to memories. (Polanyi, 1966). A number of definitions of knowledge have been produced (Anand & Singh, 2011) as seen in Table 6.



Definitions of Knowledge	Reference
Knowledge is a factor of production	Nonaka & Takeuchi (1995)
Knowledge resides in the head of the individuals . . . knowledge is that which is known.	Grant(1996)
Knowledge consists of truths and beliefs, perspectives and concepts, judgments and expectations, methodologies and know-how.	Wiig(1993)
Knowledge is information in context coupled with an understanding of how to use it	Davenport& Prusak(1998)
Knowledge is information combined with experience, context, interpretation, and reflection.	Davenport& Long(1998)
Knowledge is reasoning about information to actively guide task execution, problem-solving and decision-making in order to perform, learn and teach	Beckman(1997)
Knowledge is defined as understanding the effects of input variables on the output.	Bohn(1994)
Knowledge as new or modified insight or predictive understanding.	Kock & Queen(1998)
Knowledge is the whole set of insights, experiences, and procedures which are considered correct and true, and which therefore guide the thoughts, behaviors, and communication of people	Van der Spek & Spijkervet (1997)
Knowledge is justified personal belief that increases an individual's capacity to take effective action.	Alavi & Leidner(1999)
Knowledge refers to an individual's stock of information, skills, experience, beliefs and memories.	Alexander & Schallert(1991)
Knowledge originates in the head of an individual (the mental state of having ideas, facts, concepts, data and techniques, as recorded in an individual's memory) and builds on information that is transformed and enriched by personal experience, beliefs and values with decision and action-relevant meaning. Knowledge formed by an individual could differ from knowledge possessed by another person receiving the same information.	Bender & Fish(2000)

Table 7. Definitions of Knowledge

Source: (Anand & Singh, 2011)

Knowledge originates in the mind of the knower and is gained from a mix of experiences, values, contextual information and expert insights. It also allows for the evaluation and incorporation of new experiences and information (Murray & Hanlon, 2010; Hahn & Subramani, 1999; Davenport et al., 2005) and is therefore subject to continuous update. Knowledge is a multifaceted concept with many-layered meanings (Nonaka & Lewin, 1994; Nonaka & Toyama, 2003). Due to these properties of knowledge, it has always been important to manage it in order to drive value & performance and ensure that relevant knowledge is delivered to the relevant person or people in a timely fashion (Newman & Conrad, 1999). Knowledge is best known to exist in the human mind and can be quite difficult to access readily (Polanyi, 1966). Knowledge can also exist in documents, in computer files or databases and in an organisation all of which can be shared and accessed more readily as seen in Figure 7 (Anand & Singh, 2011).

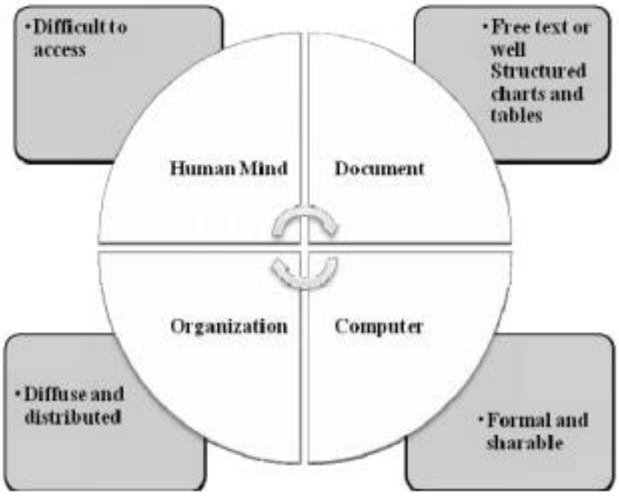


Figure 7. Knowledge storage media and its features

Source: (Anand & Singh, 2011)

Peter Drucker coined the term 'knowledge worker' in the 1960's (Micklethwait & Wooldridge, 1996) which led to extensive research and focus on the importance of knowledge and its management. This was then followed by the term KM which was coined in the 1980's by Karl Wiig (Wiig, 1999, 1997) followed by its popularisation by Nonaka and Takeuchi. KM is a fundamental shift in a strategic paradigm (Sveiby, 2001). Its major focus is on creating environments for people to create, leverage and share knowledge and for this to materialise, KM requires deep rooted behavioural and strategic change (Sveiby, 2001).

KM represents an evolution of the move towards personal and intellectual freedom (Wiig, 1999), empowering individuals in organisations to actively engage in their work by sharing ideas, thoughts and experience. The post industrial revolution period saw a drastic change in the economic landscape of the 20th century, resulting in the need for a more practical approach to KM. It became an effective way to deploy the intellectual capital of business and improve business performance (Nonaka & Lewin, 1994). As industries become increasingly competitive an increase in focus is placed on KM. Knowledge and the capability to create and utilise knowledge are often considered to be the most important source of a firm's sustainable competitive advantage (Nonaka & Lewin, 1994; Nonaka & Toyama, 2003; Takeuchi, 2006; Sveiby, 2001; Grant & Grant, 2008).

KM is therefore defined well as being the ability to convert an abstract theory into something tangible that can be used to drive efficiency in an organisation. This would apply nicely to DP in a typical NHS acute ward. An important aspect for effective KM to happen is to explicitly leverage how people use their minds to think and how they work (Wiig et al., 1997). The input of knowledge into a process sometimes generates new knowledge, and its capture, updating, storage and distribution to the right people in a timely manner is very important (Wiig et al., 1997). This can have implications for improving DP practice.

4.1 The different kinds of knowledge

Before exploring the different kinds of knowledge, the difference between data, information, knowledge and wisdom is examined.

4.1.1 The difference between Data, Information, Knowledge and Wisdom

As may be seen in Figure 8, data is a set of discrete facts which has little context and understanding, which would appear to apply to target data (e.g. waiting time, bed 'turnover' and individual items of patient medical data). Information, on the other hand provides context to data (e.g. knowing a patient's complete medical history, his or her personal circumstances etc.) which is more holistic, while knowledge is generated when experiences, ideas, insights, values and the judgment of individuals are used to analyse data and information (e.g. having an intuitive feel for when a patient is ready to be discharged (which includes 'personalisation'). Knowledge offers wider context and understanding, which then results in wisdom with the ultimate level of understanding and context, thus providing a strong judgement and analysis to a situation. Data when stored provides very little functionality to an organisation as it is not able to provide instructions to the organisation on what to do. Knowledge on the other hand is a collation of experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information (Davenport et al., 2005).

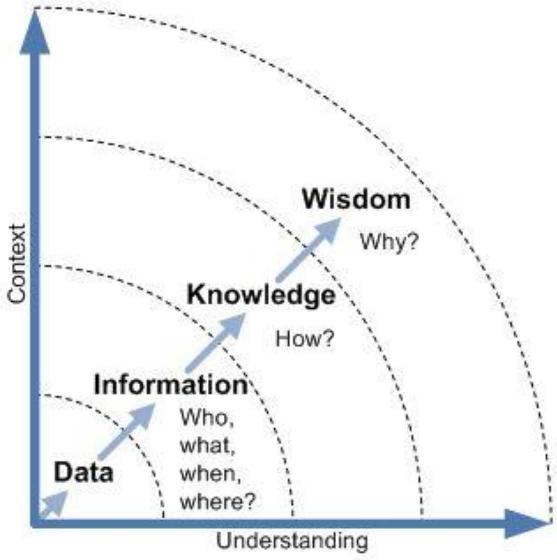


Figure 8. The Data-Information-Knowledge-Wisdom (DIKW) structure

Source: (Simmons, 2011)

4.1.2 Explicit, tacit and implicit knowledge

Now that the differences between data, information, knowledge and wisdom have been identified, it is important to understand the different types of knowledge that exist. Knowledge can be divided into three categories, tacit, explicit and implicit (Hussaina et al., 2005; Eardley & Czerwinski, 2007). Tacit knowledge is the kind of informal and hard-to-pin-down skills. It is the ‘know-how’ of people, over years of experience, while explicit knowledge is expressed as words or numbers, and can be easily communicated and shared in a variety of (Takeuchi, 2006; Nonaka, 2007b; Eardley & Czerwinski, 2007). Making the tacit knowledge explicit, allows an organisation to capture the expertise of particular individuals, thus expanding the organisational memory, but it also enhances its decision-making processes (Wickramasinghe, 2006). Explicit knowledge consists of facts, categories, models, rules, relationships and policies that can be documented and codified on paper or in electronic form (Wyatt, 2001). Tacit knowledge on the other hand is less easily formalised and communicated (Nonaka & Lewin, 1994). It is knowledge acquired through experiences, relationships, feelings, interaction, “muscle memory”, values and competence (Wyatt, 2001). This sort of knowledge requires face-to-face interaction and apprenticeships to be transferred and documented (Wyatt, 2001).

As founder of the term tacit knowledge Michael Polanyi puts it, '*We can know more than we can tell*' and '*it "indwells" in a comprehensive cognizance of the human mind and body*' (Polanyi, 1966). Tacit and explicit knowledge can be harnessed to articulate meaningful knowledge which helps in the efficient decision making process of organisations as seen in Figure 9.

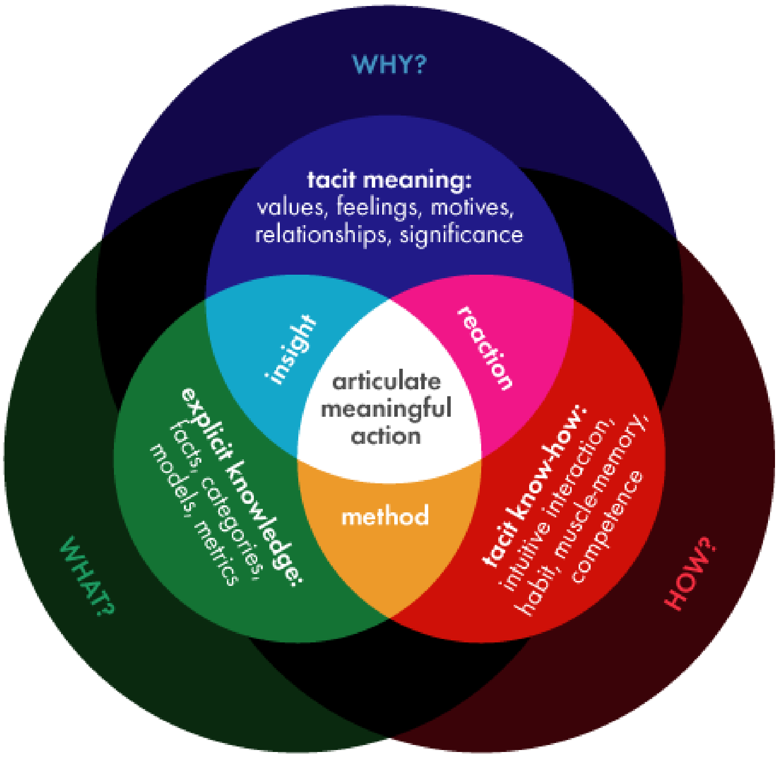


Figure 9. Knowledge for taking effective action in varied and uncertain situations. Source: (Hayward-Wright, 2012).

Despite its difficulty in being articulated and documented, some tacit knowledge can be transformed to explicit knowledge and this is known as implicit knowledge (Frappaolo, 2007). Tools, techniques and methodologies are implemented in order to capture the elusive thought processes and make them available for re-use in an organisation (Frappaolo, 2007). With implicit knowledge the focus is on the experiences and thought processes of domain experts, which become a key differentiating point for an organisation, being shared more widely throughout the organisation. Implicit knowledge has the potential to be made explicit and is therefore knowledge that can be expressed but which has not yet been expressed (Anand

& Singh, 2011). Skilled personnel with expertise in a particular field can extract implicit knowledge from individuals holding knowledge which can be potentially add value to an organisation (Anand & Singh, 2011) and this is called knowledge engineering (Fontaine & Lesser, 2002).

4.1.3 Knowledge conversion

Four different modes of knowledge conversion have been postulated by Ikujiro Nonaka from the understanding of tacit and explicit knowledge as seen in the SECI model in Figure 10. They are, tacit knowledge to tacit knowledge, tacit knowledge to explicit knowledge, explicit knowledge to explicit knowledge and explicit knowledge to tacit knowledge.

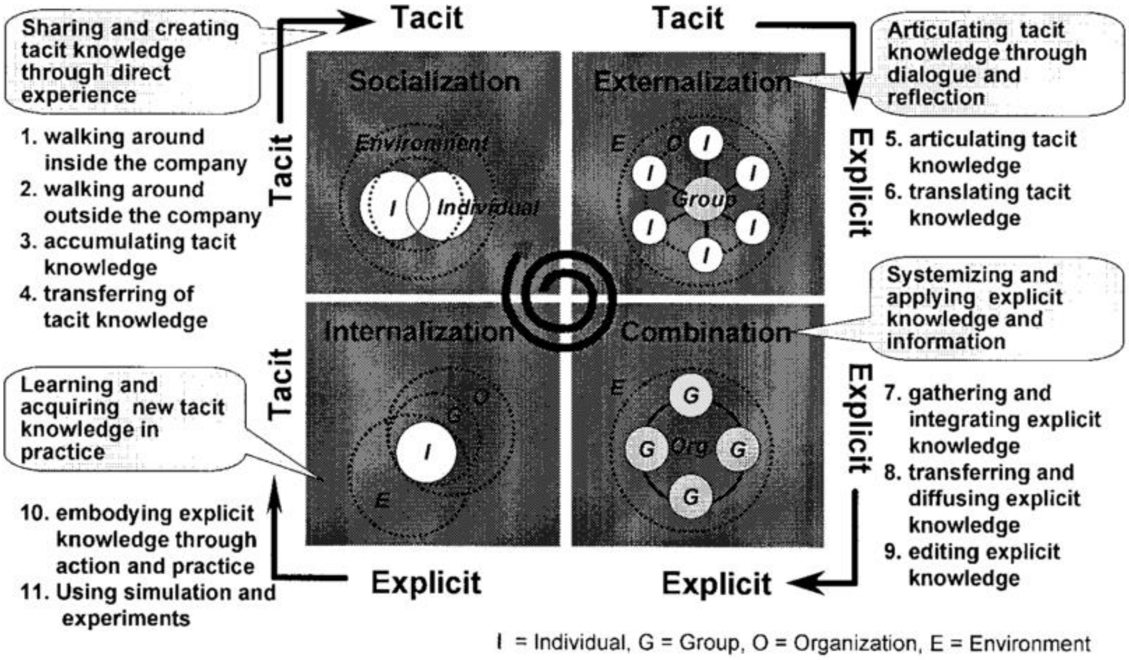


Figure 10. The SECI model

Source: (Nonaka & Toyama, 2003)

Socialisation, as the name indicates is the process by which tacit knowledge is transferred from one person to another through means of interaction. Transfer can occur in many ways, some of which include conversations and apprenticeships (Nonaka & Lewin, 1994). Tacit knowledge does not necessarily require language for the transfer to take place, it can take place by observation, by experience, imitation and even practice (Nonaka & Lewin, 1994). Some knowledge can be difficult to articulate. It sometimes is best learnt by observing how a person does something, or even with practice.

Externalisation takes place when tacit knowledge is documented and made explicit. This can be done when one's own tacit knowledge is articulated and can also be done when the knowledge of others is articulated (Nonaka, 2007a). Examples of externalisation include customer feedback, a person's experience or in the case of a hospital setting a patients experience, or the experiences of healthcare personnel.

Internalisation is the process by which newly created explicit knowledge is embodied in action and practise in the organisation (Rubenstein-Montano et al., 2001). As a result the explicit knowledge has become tacit. When the knowledge becomes embedded in the minds of the employees, the new knowledge that was made explicit has been made tacit.

Combination is the transformation of explicit knowledge to explicit knowledge (Nonaka & Lewin, 1994). Portal technologies are examples of combination, where different sources of explicit knowledge is made available upon request, and in order to aid with decision making (Chunsheng, 2000).

4.2 The demand for Knowledge Management

Changes in business processes and technologies, along with globalisation, make it impossible to work individually in most modern organisations (Carrillo et al., 2003). A single person often cannot have a sufficient range of knowledge to accomplish a complex task (such as DP). Organisations often no longer rely on individuals but on teams, groups and communities (again, this fits well with the DP model). Decisions are made based on the combined knowledge of the employees and the innovation it brings (Dekker & de Hoog, 2000). In today's economy the work force is the supreme driver of performance and when employees leave it is in effect a disposal of assets. The capture of the knowledge that all the employees have gained is important for the continued efficiency of an organisation (Hernandez et al., 2008) and these are the stakeholders in the KM model.

Progress in technology makes the sharing of knowledge easier, and the use of the Internet and collective portals makes knowledge accessible to everyone (Chunsheng, 2000) by making it easier and cheaper to codify, store and share knowledge (Hansen et al., 1999). There is therefore no shortage of technologies to aid in managing knowledge. Many systems are brimming with data and information, however accessing the information in order to make a decision seems to be a challenge. This can be due to departmental silos that prevent the efficient flow of valuable information to departments in an organisation, including a hospital ward (The

Economist Intelligence Unit, 2005). The goal of KM is therefore to enhance the performance of an organisation (e.g. a hospital) by providing efficient access to information, experts and communities. As such, KM aims to prioritise, share, consolidate and provide consistent and accurate information and performance indicators in order to help with efficient decision making processes (The Economist Intelligence Unit, 2005). This applies to DP in healthcare as much as to any other branch of organisational practice.

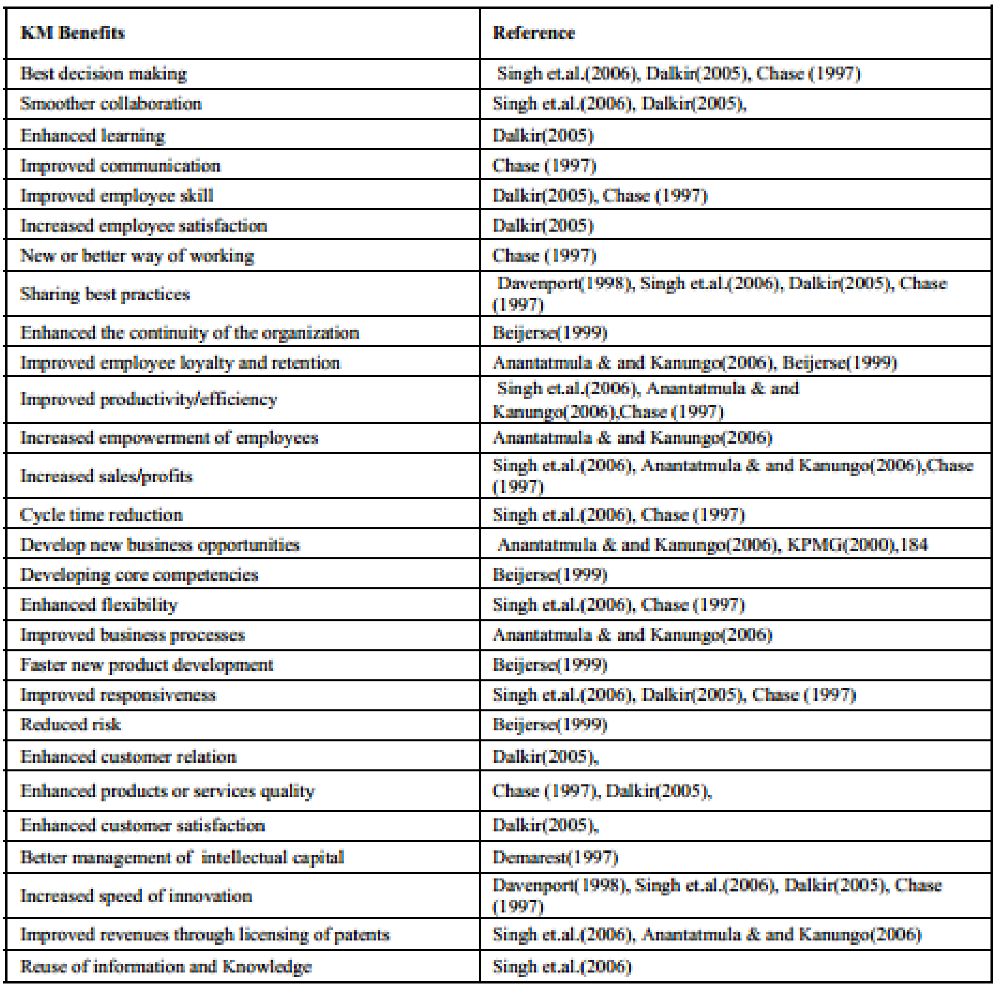
Employees in an organisation (e.g. doctors, nurses and administrators) use knowledge that they have acquired through everyday experience to solve day-to-day problems. It is important that the knowledge used to solve problems is captured, shared, updated and re-used, thus preventing the loss of 'nourishment' of the knowledge. Updating knowledge assets cultivates the collective knowledge in an organisation, enriching effective management, flow of information and knowledge within the organisation and in problem solving (Liao, 2002; Mills & Smith, 2011). Again, the value of this process to DP will be apparent. The outcome of KM by the knowledge process represented in Figure 6 results in an organisation's efficiency, responsiveness, competency and innovation (Nonaka & Toyama, 2003) which is a critical source of improved performance (Reychav & Weisberg, 2010).

Figure 11. The Knowledge process

Source: (Anand & Singh, 2011)

New knowledge that is created in an organisation when stored, shared, updated and re-used can be useful for the generation of new ideas, skills, methods and as a unique way of carrying out interactions within the organisation and with stakeholders (Nonaka & Lewin, 1994). Generating and using new knowledge within an organisation helps the organisation to achieve success in a dynamic and unpredictable environment (Nonaka & Lewin, 1994) such as patient admissions. In an organisation, the grand challenge is to create a KM system that can *'acquire, conserve, organise, retrieve, display and distribute what is known today in a manner that informs and educates, facilitates the discovery of new knowledge and contributes* [to improvement]*'* (Wyatt, 2001). This suggests a direct link between KM and process improvement, which will be of obvious benefit to DP in a hospital setting.

KM can therefore be looked on as an integrating practice that offers a framework for balancing the many technologies and approaches that provide value to decision-makers (Newman & Conrad, 1999). It ties them together into a seamless whole by aligning organisational information and practices with the organisation's strategic objectives and fits into the employees' daily work activities (Fontaine & Lesser, 2002). As a result, KM better enables individuals, systems and organisations to exhibit intelligent behaviour in a dynamic environment such as DP (Newman & Conrad, 1999). Various departments are involved in the decision-making process in DP (Yam et al., 2012) and having the right information and knowledge at the point of decision making is important to efficient DP. The benefits of KM in similar contexts are summarised by Anand & Singh, 2011 in Table 7.



KM Benefits	Reference
Best decision making	Singh et.al.(2006), Dalkir(2005), Chase (1997)
Smoother collaboration	Singh et.al.(2006), Dalkir(2005),
Enhanced learning	Dalkir(2005)
Improved communication	Chase (1997)
Improved employee skill	Dalkir(2005), Chase (1997)
Increased employee satisfaction	Dalkir(2005)
New or better way of working	Chase (1997)
Sharing best practices	Davenport(1998), Singh et.al.(2006), Dalkir(2005), Chase (1997)
Enhanced the continuity of the organization	Beijerse(1999)
Improved employee loyalty and retention	Anantatmula & and Kanungo(2006), Beijerse(1999)
Improved productivity/efficiency	Singh et.al.(2006), Anantatmula & and Kanungo(2006),Chase (1997)
Increased empowerment of employees	Anantatmula & and Kanungo(2006)
Increased sales/profits	Singh et.al.(2006), Anantatmula & and Kanungo(2006),Chase (1997)
Cycle time reduction	Singh et.al.(2006), Chase (1997)
Develop new business opportunities	Anantatmula & and Kanungo(2006), KPMG(2000),184
Developing core competencies	Beijerse(1999)
Enhanced flexibility	Singh et.al.(2006), Chase (1997)
Improved business processes	Anantatmula & and Kanungo(2006)
Faster new product development	Beijerse(1999)
Improved responsiveness	Singh et.al.(2006), Dalkir(2005), Chase (1997)
Reduced risk	Beijerse(1999)
Enhanced customer relation	Dalkir(2005),
Enhanced products or services quality	Chase (1997), Dalkir(2005),
Enhanced customer satisfaction	Dalkir(2005),
Better management of intellectual capital	Demarest(1997)
Increased speed of innovation	Davenport(1998), Singh et.al.(2006), Dalkir(2005), Chase (1997)
Improved revenues through licensing of patents	Singh et.al.(2006), Anantatmula & and Kanungo(2006)
Reuse of information and Knowledge	Singh et.al.(2006)

Table 8. Knowledge Management Benefits

Source: (Anand & Singh, 2011)

4.3 Factors to consider when developing a Knowledge Management model

Organisations are not homogenous entities, especially organisations such as the NHS that are very large. Change in organisations of such size can be challenging and a special challenge in deploying KM is that it requires systemic changes and these need to be addressed when designing a KM model for an organisation (Sinha & Lamba, 2011). KM activities take place in most organisations, and a single approach to KM might not be very practical (Hansen et al., 1999). A KM model should take into consideration the current initiatives, show the relation to the activities and identify areas where new thinking is required. The KM model should therefore tie in the various areas and departments in the organization that are related in a decision-making process, as it should suit the needs of the organisation. The KM model should allow for a multi-disciplinary approach, where it '*encourages discussion and sharing of information'*. It should also '*suit the needs of the target organisation'* (Tuomi, 1999).

The purpose of implementing a KM model is to make the organisation (i.e. a typical NHS hospital) more 'intelligent' and to help make the decision-making processes more efficient. Building dialogue between tacit and explicit knowledge as previously described in Figure 10 is important. A balance needs to be met between the different modes of knowledge conversion, in order to meet the demands and competitive advantage of an organisation (Uriarte, 2008). The knowledge in an organisation should be crystallised and embodied in a form sufficiently concrete to facilitate further knowledge creation (Nonaka & Lewin, 1994).

4.3.1 Change management

Change is an important factor to consider when developing a KM model. Change is taking place constantly and an organisation should be able to cope with the changes that take place, along with being able to foresee some of these changes in advance. The KM model should factor into the decision-making process possible changes that will take place and allow flexibility in accommodating such changes (Tuomi, 1999). In order to adapt to the changes, organisations (e.g. NHS hospitals) and the staff of the hospitals need to factor in effective time management. Therefore a KM model should include time management in order to allow for processes to be carried out in a timely manner and to allow the hospital itself and the medical and nursing staff to grow in terms of 'intelligence' (Tuomi, 1999). Measuring the knowledge gained is an important aspect to consider when designing a KM model. This is because measurement allows for a constant check, ensuring that the hospital's goals are being met or progress is being made toward meeting the goals (Shannak, 2009).

4.3.2 Organisational structure

Organisational structure is an important factor to consider when designing a KM model. Having an appropriate organisational structure in the hospital allows for responsibilities to be allocated to people according to the tasks that they carry out regularly in DP. This allows them to document and harvest knowledge in that area, enhancing overall knowledge growth in the hospital (Tuomi, 1999).

4.3.3 Knowledge content

Knowledge content is an important dimension of a KM model. The products of knowledge should be managed in an efficient way which allows it to be retrieved and understood easily by the stakeholders. In order to do this, it is important to manage and share the content in the most appropriate way in the hospital and with the stakeholders in the DP process (Johnson, 2007).

4.3.4 Technology

A KM model that blends in and adapts to existing methods in an organisation, adapts to change and time, measures the knowledge gained in the organisation in order to ensure the goals of the organisation are being met, factors in the best suited organisation structure and knowledge content management should also consider appropriate *technology* that will support the knowledge processes and its management in an organisation (Tuomi, 1999). Technologies that best support the processes and objectives of the organisation are important in aiding in the decision making process and dissemination of knowledge to all members in the organisation. It is one of the ways in which organisational silos can be broken down (Mills & Smith, 2011). The factors to consider when designing a KM model are best represented diagrammatically, as in Figure 12.

4.4 A review of existing KM models and frameworks

Holsapple & Joshi, 1999 provide an in-depth comparison of ten descriptive KM frameworks. They broadly categorise the frameworks into descriptive and prescriptive frameworks. Descriptive frameworks characterise the nature of the KM phenomena and can be further categorised into broad or specific. The broad descriptive KM framework describes the whole KM phenomena while the specific descriptive KM framework focuses on a particular aspect of the KM phenomena.

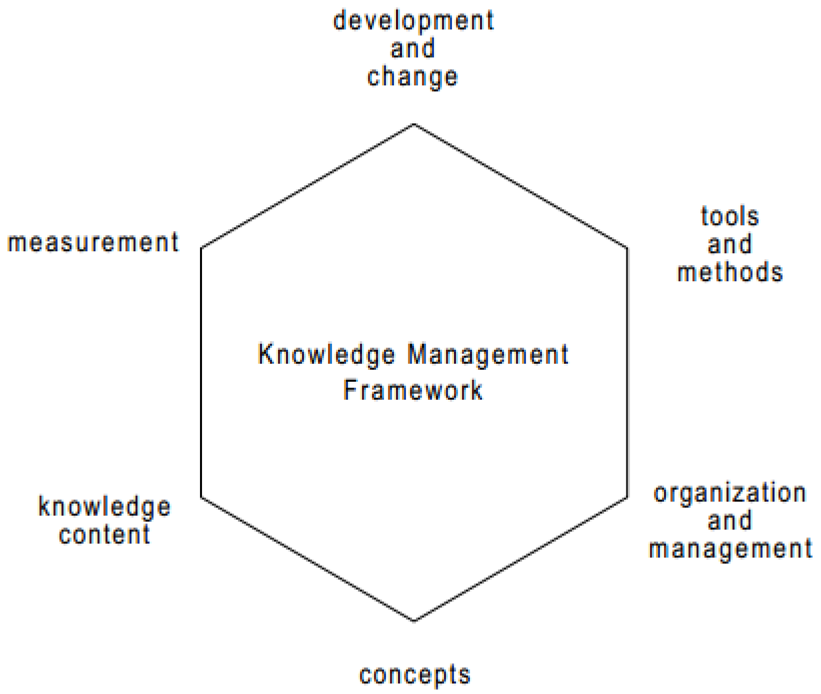


Figure 12. Model Dimensions

Source: (Tuomi, 1999)

The prescriptive framework prescribes methodologies to follow when conducting KM. It was concluded from the analysis of the ten frameworks in Holsapple & Joshi, (1999) that the dimension of knowledge resources received little attention and there was a need to identify the knowledge resources in a more comprehensive manner; there was no standard way of characterising knowledge manipulation activities and the influences on the conduct of KM. Providing a common understanding of KM was lacking and the KM activities and their inter-relationships needed to be consolidated and described more clearly. It was also noted that none of the individual KM frameworks subsumed the other. This research looks into other frameworks and models as below, further to those in Holsapple & Joshi, 1999.

KM is about disseminating the right knowledge to the right people at the right time in order to make informed decisions (Holsapple & Joshi, 2001; Sveiby, 2001). On a broad scale, KM involves generating, representing, accessing and disseminating knowledge (Wickramasinghe, 2006). Figures 13 and 14 show the processes involved in KM and technologies that aid in enabling these processes, which is very similar to Holsapple & Joshi’s (2002) view on how to manage and manipulate knowledge, which is, knowledge can be manipulated by acquiring knowledge, selecting knowledge, internalising knowledge and using knowledge (Holsapple & Joshi, 2002).

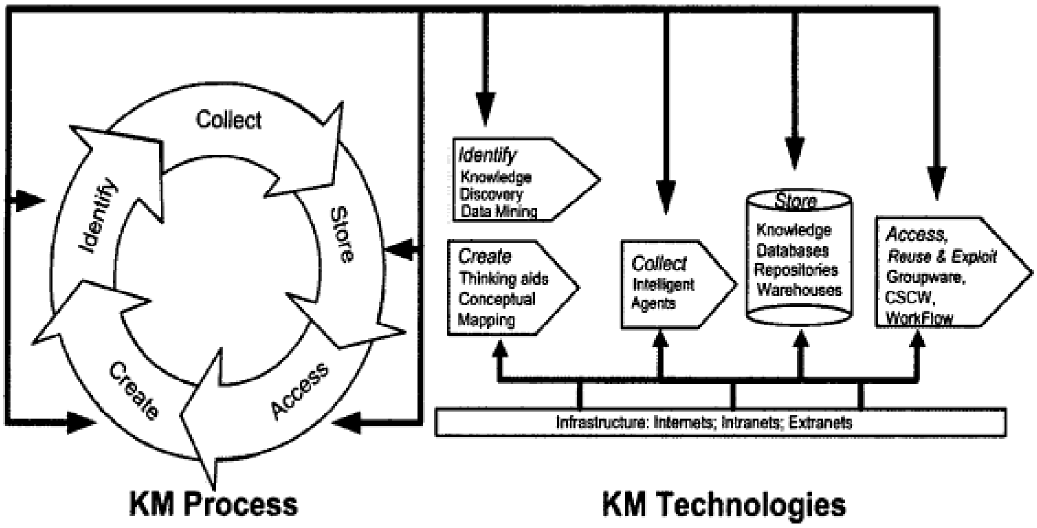


Figure 13. The KM Cycle

Source: (Bali, et al., 2007)

Figure 14 shows how people, process and technologies are involved in KM. As seen in both Figures 13 and 14 by following the various phases of KM, encouraging a knowledge-sharing culture within hospitals (i.e. breaking down 'silos'), using the technology best suited to the role of the data and information in the organisation, it will be possible to 'convert yesterday's data, into today's information, which will become tomorrow's knowledge' and in turn will recycle back into information and data (Long & Fahey, 2012).

The resources within a typical hospital can be utilised in accordance with the skills of the members within the organisation to manipulate knowledge. The knowledge manipulation skills depend on the knowledge resources and environment within the hospital (Holsapple & Joshi, 2002). Figure 15 shows a three layer model of managing knowledge, which maps closely to other KM models or frameworks which also take a three tier approach such as the threefold framework as proposed by Holsapple & Joshi.

The threefold KM framework emphasises the importance of characterising the knowledge resources that need to be managed. Characterising knowledge resources has been emphasised based on the conclusion drawn from Holsapple and Joshi, (1999) where the analysis of ten frameworks showed a lack of emphasis on the knowledge resources that play a vital role in the growth of knowledge in an organisation.

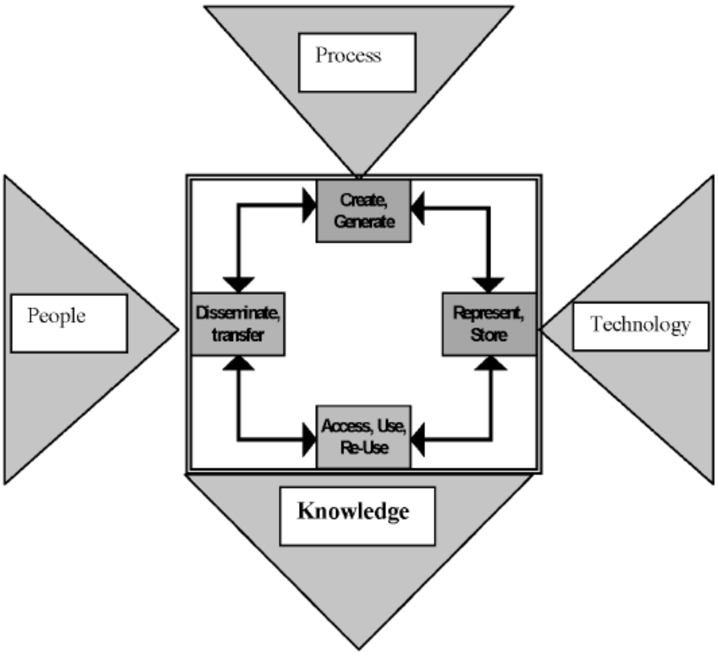


Figure 14. The involvement of People, Process &Technology in Knowledge Management

Source: (Wickramasinghe, 2006)

The threefold framework also emphasises the identification and explanation of the activities involved in manipulating the knowledge resources along with identifying the factors that influence the conduct of KM (Holsapple & Joshi, 2002).

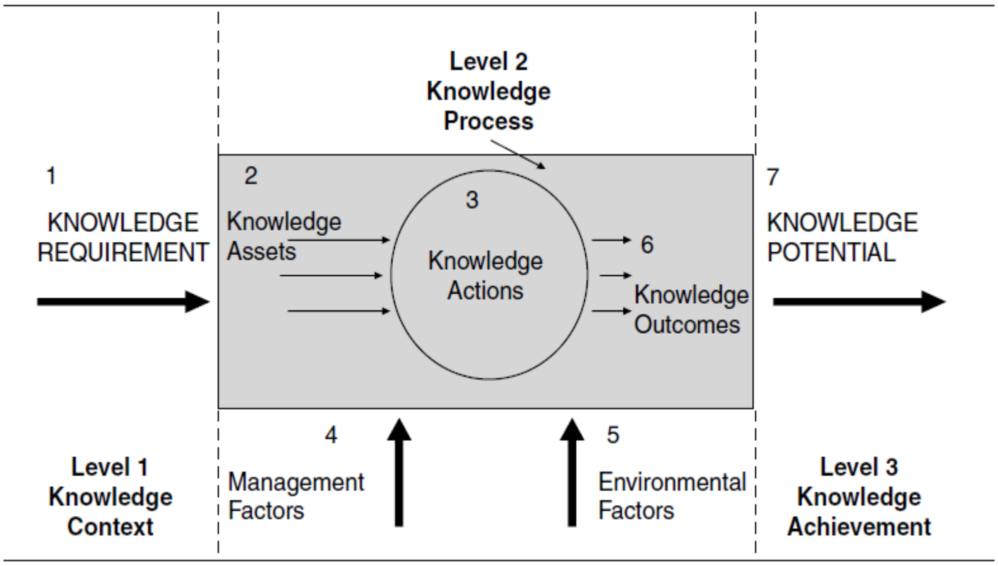


Figure 15. The Knowledge Value Chain

Source: (Shah et al., 2007)

In the first level, ‘knowledge context’, the knowledge requirements are identified. In the second level, the knowledge assets, the external influences on knowledge actions such as the management and the environmental factors (Shah et al., 2007) are factored in. In the case of the NHS they would be the availability of resources within the hospital, targets that need to be met, a patient’s living environment and various other factors. These factors together produce the knowledge outcome, in the case of the NHS a set of guidelines that will allow the people responsible to produce a personalised discharge plan. The second level (i.e. the ‘knowledge process’), is the level where knowledge is produced with the help of appropriate technologies. The technologies best suited to the NHS settings will be identified in the course of the research.

The third level ‘knowledge achievement’ is where knowledge is distributed to the people responsible for their use to make more accurate decisions, as opposed to currently where multidisciplinary teams make decisions based on case notes and discharge plans drafted out as flow charts (Johnson & Nile, 2011). Capturing patient experience and their response to treatment is a vital component to DP, as each individual is different in how they respond. The knowledge value chain in Figure 15 shows how people, processes and technologies unite in order to generate knowledge that ‘nourishes’ an organisation and aids in the decision making process.

4.5 Knowledge Management in healthcare

The healthcare industry can in general be considered to be ‘data rich’ while ‘knowledge poor’ (Abidi, 2001). Hospitals tend to be rich in collected data such as patient records, new patient findings, outcomes of surgeries and medical procedures, clinical trial data and other data alike to this. The data collected, however, is rarely translated permanently into knowledge, to provide a wider context and understanding and to help with strategic decision making (Copper, 2007). The knowledge gained is under-utilised at the point of care and the point of need (Abidi, 2008). The implementation of a KM framework facilitates the sharing of data within the organisation and allows personnel with relevant experience to make use of the data and harvest knowledge which can then be used to make inherent yet invaluable decisions which are patient-and-organisation centric. It therefore provides ‘*a window on the internal dynamics of the healthcare enterprise’* (Abidi, 2001).

KM in Healthcare is defined as the way in which multi-disciplinary teams working in Healthcare harvest the personal expertise that is essential to patient safety, learn from it, adapt it to local situations and individual patients, and distribute it via reliable networks to the people caring for the patients so that they can use it to improve the quality of care delivered (NHS Evidence, 2010). Knowledge that the healthcare industry possesses is deemed to be a ‘high value form of information’ that enhances efficient decision-making processes (Abidi, 2008). KM allows for and encourages a holistic, methodological and technological framework. It allows the capture and sharing of experiential (i.e. tacit and implicit) knowledge of healthcare personnel along with the empirical knowledge, (i.e. the outcomes and lessons) learnt from past experiences (Abidi, 2001). Knowledge captured and shared can be used for strategic decision making processes such as planning a discharge of a patient while ensuring that all the related factors internal and external to the healthcare setting are taken into consideration. It also allows for the prediction of trends, disease patterns and the overall management of the healthcare setting while being patient-centric and complying with targets that have to be met.

A fundamental challenge that is faced by clinical practitioners and healthcare institutions is the ability to interpret clinical information and to make potentially lifesaving decisions while dealing with large amounts of data (Dwivedi et al., 2002). Clinical practice is not only quantitative, but also very much qualitative. The tacit knowledge acquired by clinicians and nurses over the years (mainly through experience) represents a valuable form of clinical knowledge (Hussaina et al., 2005). KM in healthcare involves understanding diseases, hospital systems and most importantly patients and their carers (Hussaina et al., 2005). Levenstein et al., argue that clinical methods exist for understanding diseases, however clinical methods or models do not exist for understanding patients. When quantitative and qualitative methods complement each other, and when various modalities of knowledge are used, a holistic view of a situation is obtained, thus leading to more efficient decision-making (Levenstein et al., 1986). Obtaining tacit knowledge that exists in healthcare experts is vital to practising efficient KM.

KM strategies can be classified into codification and personalisation. Codification is where knowledge is identified, captured, indexed and made available. It is made explicit for use and application by people involved for everyday decision making (Wyatt, 2001; Nonaka, 2007a). Personalisation takes a slightly different form, where tacit knowledge is shared by means of discussion, effective communication and a multi-disciplinary approach, allowing for more creative problem solving (Nonaka, 2007b; Nonaka & Lewin, 1994; Wyatt, 2001). It has been seen that organisations are most effective when using both Codification and Personalisation strategies, with one being the main focus and the other playing a supporting role (Hansen et al., 1999). Deciding which strategy is focused on would depend on the organisations competitive strategy, i.e. the value for the customer, their economic model and their employees ability to deliver on value and economics (Hansen et al., 1999). Therefore, in Healthcare, the use of both strategies for the different scenarios is advisable. When dealing with routine cases, the codification strategy can be applied and when dealing with a situation where a more creative solution is required, the personalisation strategy can be applied (Wyatt, 2001).The codification strategy allows for cost efficiency which the NHS is striving for, and achieves scale in knowledge reuse with the invent of telemedicine and the map of medicine. The personalisation strategy allows for advice being provided in a creative, analytical and rigorous manner on specific cases requiring increased attention through conference calls and consultation of experts (Hansen et al., 1999).The NHS currently employs NICE, (National Institute for Clinical Excellence) guidelines for routine problem areas, care pathways and triage algorithms in the NHS direct decision support system (NHS Commissioning Board, 2013; National Institute for Health and Care Excellence, 2013; Wyatt, 2001). The NICE guidelines, along with many other KM research and initiatives in Healthcare do not focus on DP but rather places more emphasis on the diagnostic aspects of Healthcare. Another problem faced by the use of NICE is the lack of willingness to share information by doctors (NHS IC, 2012; National Institute for Health and Care Excellence, 2013).

4.5.1 Knowledge Management for Discharge Planning

A hospital is a dynamic environment, with changes taking place rapidly. DP similarly involves changes from a temporal stable state to another with an unpredictability of what is to happen next (Liao, 2002). It is here that the past experiences of doctors and nurses in assessing a situation, deciding on a plan and decision making is useful as during the decision making process, previous knowledge gained by the personnel who actively engage with patients can be extended to fit the situation or the patient at hand (Liao, 2002). The tacit and implicit knowledge possessed by personnel actively engaged with patients is useful in these situations in order to provide a personalised approach to assessing a patient and their journey in the hospital along with following a codified guideline. KM aims to solve the bottlenecks that occur in the various departments currently in the NHS, in order to improve the DP process by processes such as knowledge mapping and identification of possible opportunities for improvement (Roy et al., 2000).

Nonaka & Toyama (2003), state that *'In knowledge creation, one cannot be free from one's own context'.* This implies that, in a hospital setting, when looking at DP the consideration of the inter-related factors is important in the decision-making process, as the different factors and the context provide a basis for creating meaning (Dervin, 2003) and helping in the decision-making process. This re-emphasises the importance of taking into consideration the factors in Table 5 and Figure 6.

The integration of information and information sources can and will significantly benefit the DP and more importantly the patient's care pathway. The integration of knowledge processes improves the efficient handling of data and enables the alignment of information into decision making, thus allowing the 'right actions at right times to the right patient and by the right carers', while using only the resources that are needed and no more at the point of discharge. Healthcare personnel face the risk of tiredness, due to the long working hours and low staffing levels, losing important information due to an excessive amount of paper work and due to information being scattered in various locations at the point of decision- making. This results in a loss of accuracy and the routine and repetitive nature of DP does not allow for accurate completion of the DP process, resulting in the problems highlighted in Chapter 3 and in patients receiving unnecessary healthcare interventions. Successful KM for DP therefore would ensure that processes for DP are in order and are integrated into the patient's care pathway and are able to run in parallel, preparing for accurate discharge, yet at the same time enabling more accurate care. The integration of multiple facets of information also allows for more efficient sharing, reduction of duplication of information and reduces errors or missing information that is needed at the point of DP. KM highlights the importance of integrating information about a patient and their multiple conditions and helps to prioritise and to record future plans and actions.

4.5.2 Knowledge Management frameworks in healthcare

Healthcare knowledge is complex in both form and function, hence the current challenge of the healthcare industry being data rich while knowledge poor (Wyatt, 2001). General KM frameworks were discussed in Section 4.4. This section reviews KM frameworks that have been proposed specifically for healthcare. The first framework that will be discussed includes the Organisation Current Knowledge Design (OCKD) framework seen in Figure 16. The first stage in the Framework involves the identification of the core competencies in the organisation which includes the mission, objectives, strategy and tactics (MOST) along with how they are aligned (Bali et al., 2002). This is then followed by an economic, industry and company (EIC) analysis to ensure that the organisation's MOST are in line with the EIC. The next step will then be the identification of the current and future needs of the organisation (Bali et al., 2002). The relationship between the technological infrastructure and the knowledge infrastructure (i.e. the tacit and explicit knowledge) is then identified in the Knowledge Diagnosis stage. This is then followed by the designing the knowledge management strategy stage, where the ratio of personalisation and codification strategies are evaluated accordingly and are implemented.

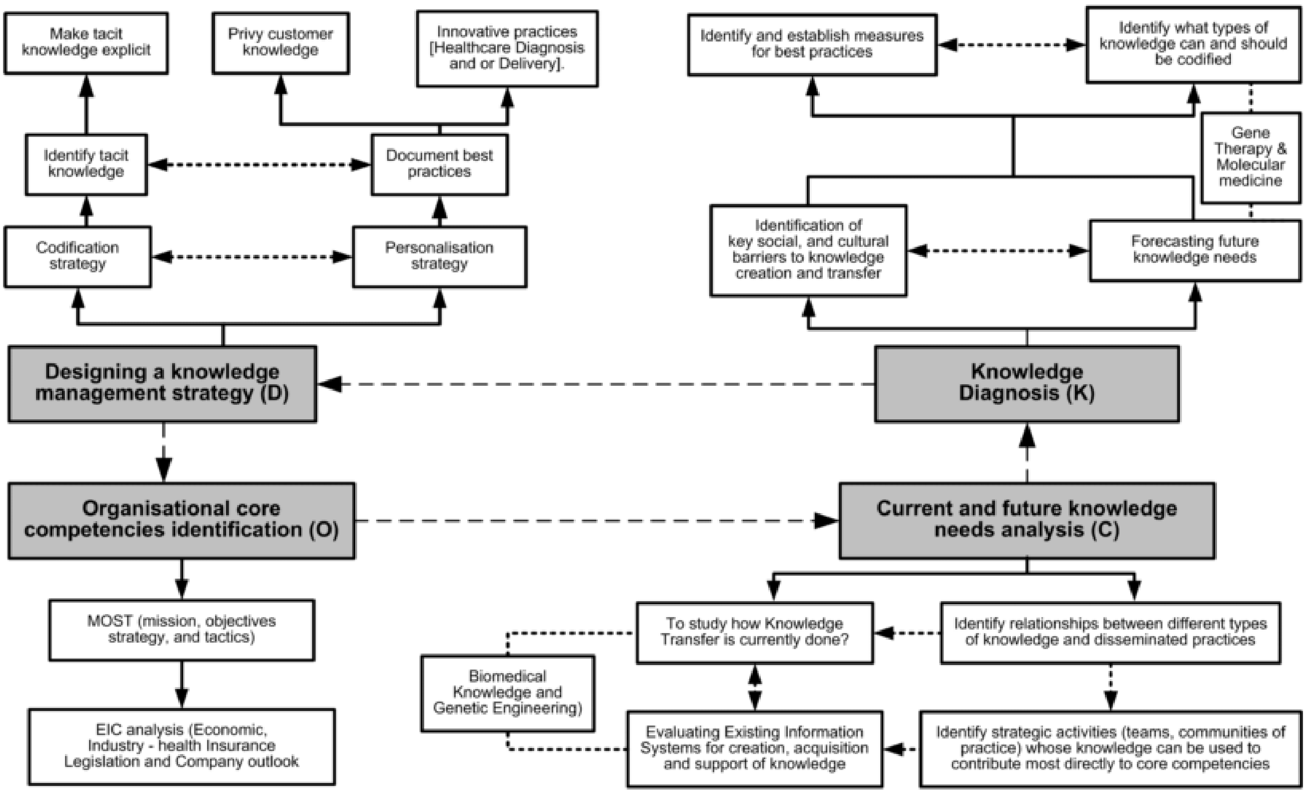


Figure 16. The OCKD Framework for Healthcare Institutions

Source: (Bali et al., 2002)

The framework in Figure 17 is known as the CarePlan framework by (Abidi, 2008). Planning a patient’s care plan based on current and relevant knowledge is very much desired by healthcare professionals (Abidi, 2008). The CarePlan framework is a patient centric care planning framework that emphasises the importance of healthcare personnel using their tacit and explicit knowledge along with knowledge of patients in order to make decisions pertaining to the care of a patient. It also emphasises the importance of personalising the care plan to the patient and allowing for constant updates of the records of the patient, thus allowing for a care plan that is up to date every time a patient visits the hospital. The OCKD framework in Figure 16 provides an overall view of how to manage knowledge within a Healthcare setting, which the CarePlan framework in Figure 17 focuses on the technologies and databases that play a significant role in breaking down silos which currently exist in the Healthcare setting.

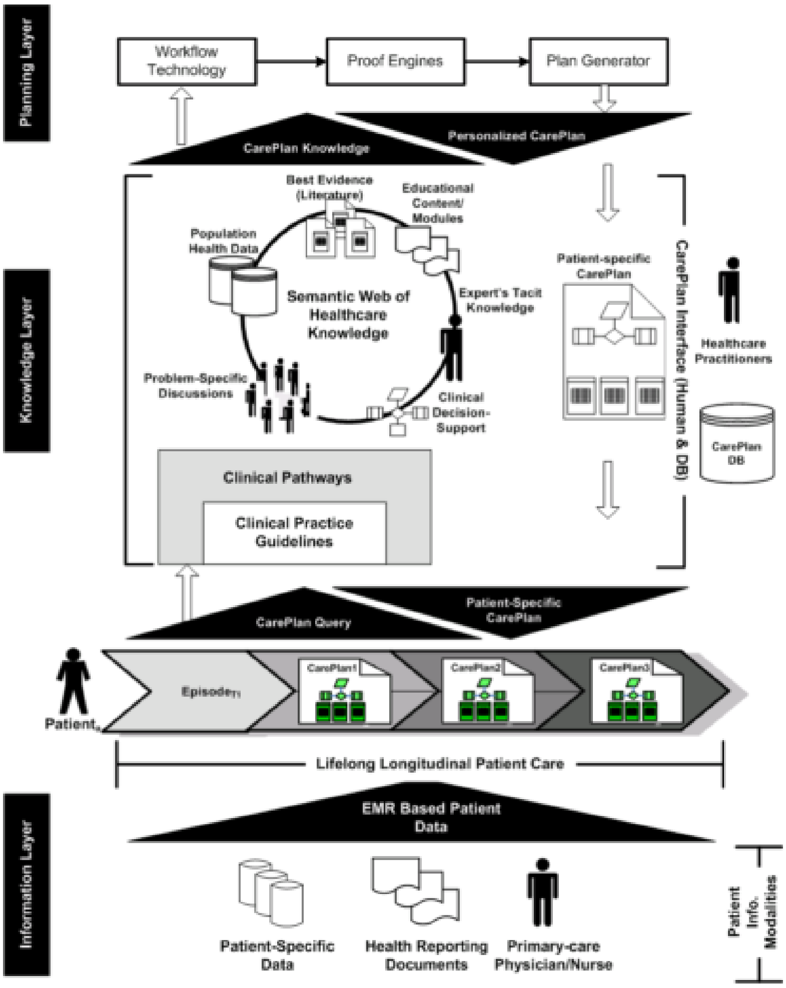


Figure 17. The CarePlan framework : different functional layers and components

Source: (Abidi, 2008)

4.5.3 A critical evaluation of Knowledge management frameworks

A critical evaluation of the frameworks discussed in Sections 4.4 and 4.5.2 is presented in Figure 18. All the frameworks ensure that the employment of a set of ideas to discuss and manage knowledge in an organisation. All the frameworks ensure knowledge content management is taken into consideration. They ensure that appropriate technologies are used for knowledge discovery, storage, reuse and the sharing of knowledge. The Knowledge Value Chain, OCKD Framework and CarePlan encourage an organisational structure where the roles and responsibilities of the people involved are identified and the measurement of knowledge, thus ensuring that the goal of the organisation is being met and the steps the organisation is taking are consistent with meeting the goals. The frameworks, however, lack an aspect of support or guidance on change management.

A critical evaluation of KM frameworks based on factors in Figure 12.

Factors	The KM Cycle. K.Bali, et al., 2007	The involvement of People, Process &Technology in KM. Wickramasinghe, 2006	The Knowledge Value Chain. Shah et al., 2007.	OCKD Framework. Bali et al., 2002	CarePlan Framework. Abidi, 2008
Conceptual basis for knowledge	✓	✓	✓	✓	✓
Change Management					
Measurement of Knowledge			✓	✓	✓
Organisational and management structure			✓	✓	✓
Knowledge content management	✓	✓	✓	✓	✓
Technologies	✓	✓	✓	✓	✓

Figure 18. A critical evaluation of KM Frameworks.

Change management is important in order to ensure that when the framework is implemented in the organisation, the reaction toward the change is taken into consideration and time is given to allow for change, along with the overall culture within the organisation that encourages the change. The proposed model for the purpose of this research will therefore incorporate factors such as change management, organisational structure and a means for measuring knowledge along with the other factors listed in the figure. It will also ensure that it is understandable to the different people who will be making use of it for their decision making process (Pawlowski & Bick, n.d.).

Abidi, (2008), states that decisions about a patient should be based on the best point-of-care patient data that is available along with knowledge of the patients' therapeutic preferences and Levenstein et al., (1986) also concur with this. Since patients are the centre of the healthcare setting it is important that the patients' needs and well-being are taken into consideration. Theoretically healthcare settings are patient centric. However the healthcare setting is also faced with having to meet targets and policies which are unavoidable. This research acknowledges and agrees with the extensive research done by experts in the field of Healthcare KM. It also takes into consideration quantitative factors such as treatment time, bed and other targets that need to be met, along with the need to co-ordinate the aftercare of a patient upon discharge as the convalescence of a patient extends to post-discharge too. The model proposed in this research intends to be a more complete and sophisticated Healthcare KM solution which will result from a cross fertilisation of secondary research from Healthcare KM experts and primary research in several NHS settings (Abidi, 2008). The proposed model will be implementable, scalable and manageable. It will be an amalgamation of people, processes, and technology and it will amalgamate the knowledge that people have and incorporate that knowledge into the processes and technologies. It will be both participative and anticipative in that the decision making process will involve all the people (i.e. stakeholders) who deal with the patient. It will offer a combination of flexibility and agility (Malhotra, 2000).

4.6 Conclusion

This Chapter therefore revealed that data, information and knowledge represent different levels (see Section 4.1.1) of complexities and scales. They are not the same, and exist at different dimensions of operations. It is important to make the most of the important resources i.e. the people and the expertise they have. Having the correct data provides the intelligence that healthcare personnel need during DP (NHS Scotland, 2013). Knowledge should be tied into business goals and targets. Chapter 5 presents results of the primary research that was carried out in the NHS Trusts and statistics collected from the DH.

Chapter 5. Analysis of Results

5.1 Introduction

The role of KM in DP was examined in the previous chapter, along with a review of some of the more common and relevant KM frameworks and models. This chapter will present the research findings. In Chapter 3, it was established that there were internal, external and psychosocial factors that were shown to contribute to inadequate DP (see Table 5). The coding of the primary research using the GT method as described in Section 2.3.1 has resulted in the emergence of several themes and sub-themes which will be critically analysed in the following sections. This research primarily focuses on factors within the NHS, as it is believed that the cumulative impact of these factors and processes would have a cascading effect on factors external to the NHS and on the psychosocial factors of patients. Figures 19 and 20 indicate the factors within the NHS that are shown to contribute significantly to delays in discharge in comparison to social care, reaffirming the investigation of factors internal to the NHS in this research.

Figure 19 shows that delays in discharge are mostly caused by factors that are internal to the NHS. The factors relating to delays in social care are external to the NHS and arise due to a variety of reasons such as a lack of communication, 'last minute' planning, poor co-ordination of resources and lack of available space (Godden et al., 2009). These factors can be minimised if the processes are organised in a timely manner to accommodate the patient's needs and to minimise delays. The total delayed discharge therefore represents the delayed discharge values for both the delays in the NHS (i.e. internal factors) and social care (i.e. external factors).

The data collected was published in the first quarter of the year under examination. Therefore the results shown in Figure 20 show an estimate of the delayed discharge based on an average of the previous results. Similarly to Figure 19, the value of delayed discharge for Figure 20 show that the delayed discharge due to reasons within the NHS are higher than that external to the NHS (e.g. social care). A comparison of Figures 19 and 20 shows that the patterns of delayed discharge are similar and that there has been a reduction in numbers year on year, but with an increase in the number of delays. This reinforces the importance of a KM-based DP model to streamline planning processes within the NHS, thus ensuring that improved DP is made possible.

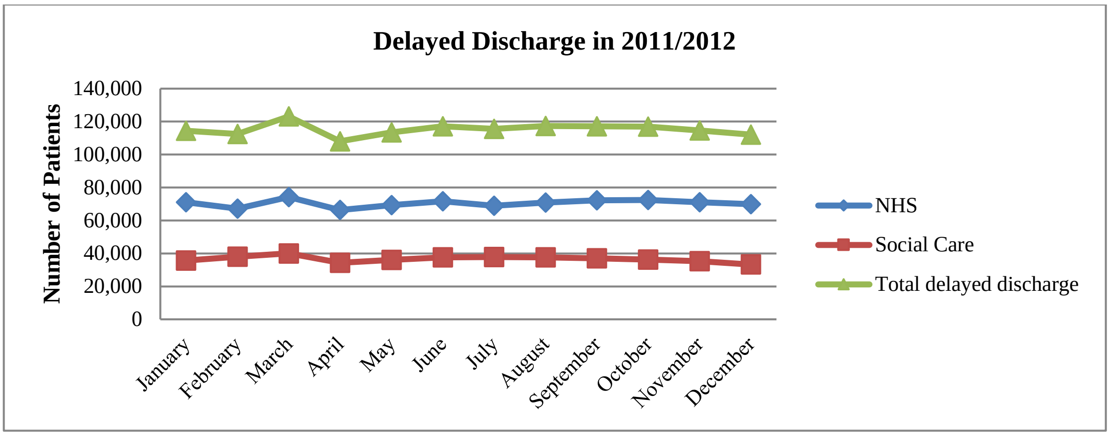


Figure 19. Delayed Discharge in NHS England for 2011/2012

Source: (NHS England, 2012)

Link: http://data.gov.uk/dataset/acute_and_non-acute_delayed_transfers_of_care-monthly_situation_reports_

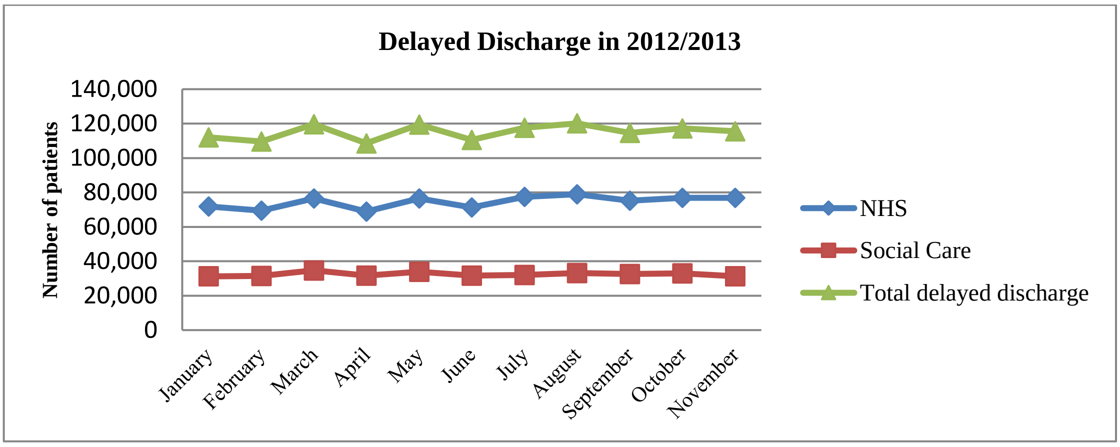


Figure 20. Delayed Discharge in NHS England for 2012/2013

Source: (NHS England, 2012)

Link: http://data.gov.uk/dataset/acute_and_non-acute_delayed_transfers_of_care-monthly_situation_reports_

Chapter 4 provides a deeper insight into the significance of DP, and the contribution to the research that concludes that a well devised discharge plan has an effect on the overall convalescence of a patient along with the management of resources in a hospital setting. This chapter presents the results of the primary research from the NHS Trusts, interviews with people who have in the past year been admitted (2012-2013) as inpatients, interviews with general practitioners along with statistics obtained from the Department of Health. This Chapter ties the objectives of the research as described in Section 1.5.3, and revisits KM models in order to correlate the results with KM theory, leading to the development of the KM model that is the major output and contribution of the research. It therefore provides the foundation for the next chapter, Chapter 6, which describes the KM Model supporting DP.

5.2 Discharge Planning guidelines, set by the Department of Health

The discharge planning procedures of the ten NHS trusts were compared against the guidelines provided by the DH as seen in Appendix C. The discharge guidelines of the ten NHS trusts were readily available and the guidelines prescribed by the DH are also readily available (NHS Institute for Innovation and Improvement, 2010), allowing a clear comparison. A matrix for comparison was created using the DH guidelines and this was compared with the discharge policies of the ten NHS trusts. The shaded cells indicate that the guideline is currently being followed by that trust and it becomes evident that most of the guidelines are practiced by most of the trusts. From the shaded cells in the matrix as seen in Appendix C, in can be concluded that the NHS Trusts indicate that their DP meets the following guidelines:

- DP and transfer planning commences before or on admission;
- patient and carer are involved in the decision making process;
- a clinical management plan for every patient is developed within 24 hours of admission;
- an expected date of discharge or transfer is set within 24–48 hours of admission and discussed with the patient and carer;
- the multidisciplinary team are involved in the DP meeting.

None of the trusts indicate that they make decisions to discharge and transfer patients only on a day-to-day basis. Only one trust ensures that patient’s benefits (i.e. an external factor) are arranged prior to discharge and 30% of the trusts indicate that they review the discharge plan with patients and their families each day.

The majority of the NHS trusts implemented 85% of the guidelines as prescribed by the DH, but the fact that the remaining 15% did not do so is significant. No specific reasons for this are given in the published information but there could be several reasons why the guidelines were not followed. One reason, according to a personal communication with the Project Manager for Hospital Information Systems (HIS) of St. George’s Hospital, Stafford and the SSSHT, is that the discharge process maps and pathways do not clearly indicate what knowledge is required for a particular process to take place or the knowledge that is gained from past experience of undertaking the process. A consequence of this could be that when they are not clearly stated in the pathway some important steps could be missed out, which could lead to disorganisation in the DP process.

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Another possible reason for neglecting some of the guidelines could be the lack of funding or a willingness to invest in a system (e.g. a clinical portal) that encourages the sharing of information within various departments in the NHS so as to breakdown the silos of information that exist (The Royal College of Physicians, 2007). The research therefore investigates these factors further in order to identify if the documented guidelines in discharge plans are actually followed or if a more ad-hoc approach to DP is followed.

The following sections describe the results obtained from the GT research. The effectiveness of the discharge guidelines prescribed by the Department of Health in practice is analysed and their effectiveness is measured by analysing feedback from patients, carers, healthcare personnel, administrative staff in the NHS and statistics from the Department of Health. The analysis resulted in the coding of themes that will be presented later in this chapter, followed by a Pareto Analysis.

5.2.1 Patient and carer involvement in the Discharge Planning decision making process

It has been said that involving patients and carers in the decision making process results in a more accurate assessment of needs (Lynch, 2011). This may be true; however the extent of involvement of the patient and carer is likely to be important too. The results from the interviews with patients as seen in Appendix A, Section 1.0 show that the majority of patients and carers were simply told when they were to be discharged and their previous involvement in the decision-making process was minimal.

5.2.1.1 The readiness of patients to be discharged

When patients and carers were asked if they felt ready to go home, some of the responses included the following:

A former patient (Meeting 1.4) stated; *'I wasn't asked. I was told a few hours before I was to be discharged that I was leaving the hospital today'*.

A carer (Meeting 1.3) stated; *'I wasn't asked anything. I think they didn't talk to me much because my English isn't so good and maybe because kidney stone is quite a normal thing for men, maybe because it wasn't very serious. They didn't tell me when he was going to be discharged; he rang me and told me he was going to be discharged, so my daughter and I went up to the Hospital to bring him home'*.

Some patients were asked if they felt better and if they felt well enough to go home, however the majority of the responses as seen in Appendix A, Section 1.0 indicates that patients and carers were not consulted. The responses show the emergence of a lack of several systemic features such as the following:

- The failure to include patients and carers in the DP process;
- a general lack of process, poor patient, carer and healthcare personnel communication, language and cultural barriers that were not addressed and a lack of informed decision making.

Table 9 presents a comparison of the results obtained by the researcher to a study by the care quality commission, comparing the responses of patients. When asked if patients were involved in planning their discharge from hospital in the in-depth interviews with eight patients:

- 25% of the respondents said they were minimally involved:
- 75% said they were not involved;
- no-one responded saying they felt that they were very involved in the planning of their discharge.

This shows a lack of active involvement of the patients, and therefore inhibits personalised patient care and personalised DP. In the survey by the care quality commission, when asked if patients were involved in their discharge planning:

- 53% responded saying they were definitely involved;
- 30% responded saying they were involved to some extent;
- 16% responded saying they were not involved.

There are significant differences in the responses, however it should be taken into consideration that the level of involvement is not defined in the care quality commission study, while in the present study the responses of the patients are presented in Appendix A, Section 1, and the level of involvement is indicated by the responses provided by the patients.

Table 9. Comparison of research results with findings of Care Quality Commission

Question asked to patients	Primary Research Finding	Percentage %	Care Quality Commission Questions	Care Quality Commission Finding	Percentage %
Were you given a discharge date and time in advance?	Yes	12.5	Were you given enough notice about when you were going to leave hospital?	Definitely	56
	Sort of/tentatively	75		To some extent	31
	No	12.5		No	13
Were you involved in planning your Discharge from hospital?	Very involved	0	Were you involved in your DP?	Definitely involved	53
	Minimally involved	25		To some extent	30
	Not involved	75		Not involved	16
Did any of the healthcare personnel ask if your home condition was conducive for your recovery?	Yes	0	Was your home situation taken into consideration?	Completely taken into consideration	60
	To some extent	0		To some extent	21
	No	100		No	19
Was your medication prescription explained to you?	Yes	12.5	Was the purpose of the medication explained to you?	Completely explained	75
	To some extent	0		To some extent	17
	No	87.5		Did not explain	8
Were your symptoms, prognosis, recommendations, medications and dosage details given to you in writing?	Yes	0	Were you given written or printed information about what you should or should not do after leaving hospital?	Yes	67
	A general one	62.5		No	33
	No	37.5			
Were your symptoms and prognosis clearly described to you by the healthcare personnel when in hospital?	Yes	25	Were you danger signal to look out for explained?	Completely	41
	To some extent	50		To some extent	21
	No	25		No	38
Were the patients symptoms and prognosis clearly described to you by the healthcare personnel when in hospital?	Yes	0	Was your carer given information?	Definitely	48
	To some extent	33.3		To some extent	24
	No	66.7		Not given	29
Could you understand the discharge summary?	Yes	50	Could you understand your discharge summary?	Definitely	75
	Sort of	37.5		To some extent	23
	No	12.5		Could not understand	3

The patients in the patient participation group indicated that carers were not very involved in the discharge planning process and that the level of involvement varies according to trusts and how busy the healthcare personnel are at the point of admission and discharge. During the interviews with nurses, when asked if nurses consulted patients about their readiness to be discharged, the responses were :
(Meeting 4.1A) 'Sometimes yes', (Meeting 4.2B) *'Mostly yes, I can more or less tell if they are ready or not to go home'* and (Meeting 4.3C) *'Yes when I have time I ask them, while other times we sort of know'.*

The responses from the nurses seem to be relatively unstructured, inconsistent and may be based largely on tacit knowledge. They also show a lack of reference to or application of explicit knowledge. Doctors, when asked the same questions, responded by saying:

- *(Meeting 5.1A) 'The nurses do ask patients that sometimes, it would be best to ask nurses that.'*
- *(Meeting 5.2B) 'During rounds I do, but sometimes the pressure is just too much to get patients out.'*
- *(Meeting 5.3C) 'I think the nurses do. They get more time to spend with the patient.',*
- *(Meeting 5.4C) 'If there is time, they are asked. But we more or less can tell, again it depends on what the patient has been admitted for.'*

This also demonstrates apparent inconsistency and informality in the doctors' use of knowledge. The responses given by the healthcare personnel (i.e. the nurses and doctors) highlights a number of flaws in the DP system, most notably the following:

- Poor patient and healthcare personnel communication;
- a lack of DP process and accountability;
- the tacit knowledge of healthcare not being made explicit;
- such information being available (e.g. in ICT systems) but is not being made explicit for future re-use.

Other systemic flaws include the obvious failure to involve the patient in the DP process. Similar systemic flaws emerged when healthcare personnel were asked if they consulted carers about a patient's readiness to be discharged, indicating that the carer's involvement in the DP process is even less than the patient's involvement, which is not great itself.

5.2.1.2 Patient's previous hospital visit

Knowing about and having the details of a patient's previous hospital history is important, as the case notes of the patients previous hospital visits could add value to the current DP situation (Mamon et al., 1992). During the interviews, when patients and carers were asked if the patients' previous visits to hospital were included in the consultation, all the patients responded positively, indicating that they were asked about their previous hospital visit, except for the patient who suffered a stroke. The reason was that the condition with which they were admitted did not warrant the time or allow the ability to have a conversation. One patient, however, did mention that because it took a long time to diagnose what was wrong with her, they had many different teams within the hospital, from different departments asking the same questions. question according to this formerpatient *(Meeting 1.7)'15 different people'* asked the same and this frustrated her, as along with the anxiety of not knowing what was wrong with her, she was bombarded with the same question repeatedly which affected her confidence in the DP system. These responses show the following effects, for which causes can be sought:

- A delay in sharing medical records between departments;
- a relative lack of rigorous DP process;
- a lack of sufficient information about the patient;
- poor information sharing amongst healthcare personnel;
- inadequate communication amongst healthcare personnel.

All of which, if coordinated accordingly, would prevent the silos which currently exist, would prevent confusion and anxiety in patients, would allow for a timely sharing of records, preventing redundancy and islands of information from accumulating. Sharing of records and information allows for a more integrated approach toward DP as the information needed is available at hand without having to wait for other departments to supply information. It therefore reduces the time spent in waiting.

The carers, however, gave a very different response. When asked the same question, the majority of the carers responded by saying that they were not frequently. One carer's response was interesting; (Meeting 1.8)*'No I wasn't asked anything. Actually it's not a bad idea is it to ask me too, considering I was there every step of the way. There might have been something I knew that could have helped. Maybe not in this case but for someone else, who knows?'* This response was interesting as it indicates that the carer themselves realised that if involved, they could contribute valuable information, highlighting a flaw in communications between the healthcare personnel and carer.

5.2.1.3 Patient's home condition and how conducive it is for patient's recovery

A patient's home should be conducive to their recovery, meaning it should have a ramp in the event a patient requires the use of a wheel chair, it should have sufficient heating, if a patient is unable to climb the stairs there should be a means of assisting the patient. Therefore it is important to acquire information relating to mobility during DP. This is because where patients face difficulties climbing stairs, or may need some extra help, knowing their home circumstances (e.g. whether they live alone or live in a bungalow) is important in order to know if extra help or services need to be included in the DP. Having information beforehand from the patient and/or carer about the patient's home circumstances is therefore important, as it allows these considerations to be included at an early stage of the DP process and the necessary contacts to be put in place well in advance of the DP process (Foss & Hofoss, 2011). As can be seen in Figures 22 and 23 according to the statistics obtained from the Department of Health one of the reasons for delayed discharge between the years 2011/2012 and 2012/2013 is 'awaiting care package in own home'. Having such information beforehand could therefore reduce at least one reason for delayed discharge in the NHS. A delay in discharge has financial and administrative implications for the NHS and psychosocial implications for patients and carers (Godden et al., 2009; Williams et al., 2010).

In the interview with patients and carers, when asked if healthcare personnel asked them if their home circumstances were conducive to recovery, all twelve respondents replied saying they were not asked about this matter. Therefore it is found that:

- 100% of the patients' responded that their home condition was not taken into consideration.

The findings from the care quality commission however present different results, when asked if their home condition was taken into consideration in the decision making process:

- 60% of the respondents said their home condition was completely taken into consideration in the care quality commission findings;
- 21% said their home condition was taken into consideration to some extent;
- 19% responded their home condition was not taken into consideration.

It is taken into consideration in the results from the primary research that most of the patients apart from three of the patient respondents who had suffered a stroke, heart condition and a back operation respectively perhaps did not require a thorough assessment of their home condition. However for these patients understanding their home condition and providing advice on care is important. This too indicated similar failures in systemic features as previously described, including a lack of empathy by healthcare personnel.

5.2.2 Equipping patients' with information prior to discharge.

When patients are equipped with information, their recovery at home becomes a smoother process as they have the information they need to recover. When patients do not have sufficient information to support their recovery at home, they have doubts and fears which, when not addressed, might result in patients not taking proper care of themselves and carers not having sufficient information to be of help to patients. This could result in patients having to be readmitted (Institute for Healthcare Improvement, 2011; Sg2 Healthcare Intelligence, 2011; Mamon et al., 1992), which can be avoided if patients and carers were provided with relevant information in a form they understand.

5.2.2.1 Patient's needs assessment

The minimal involvement of patients and carers hinders the accuracy of the needs assessment. Therefore it is important that the nature of the involvement, in terms of the questions asked to patients and carers, the time allocated to acquire information from them, along with enabling them to feel comfortable to share their information and the accuracy in which the information acquired from the patient and carer is fed back into the DP procedure. The findings of the patients' perception are similar when compared to other findings (Lynch, 2011; Worth et al., 2000; Wiles et al., 1998; Grimmer et al., 2006), indicating that, despite the efforts made to change policies in the NHS with regards to DP and patient care, the policies are inappropriate or inadequately implemented and lack a systemic or holistic approach. Hence the need for this research which prompts, a fresh systemic approach with information from the people actively involved in the DP process such as the patient, carer and healthcare personnel to be fed back into the DP process ensuring knowledge generation which results in an informed and personalised DP process.

Using patient and carer information to make an informed discharge plan, along with empowering the patient by equipping them with the information they need upon discharge, avoids emergency readmissions, reduces the stress incurred by patients and carers upon discharge and minimises the cost born by the NHS due to emergency readmissions (Lynch, 2011). From the interviews with patients and carers, some of the concerns they had included:

- Whether or not they were taking their medication properly;
- what they could do and what they should avoid doing;
- the symptoms they would feel;
- if they had a pain or uneasiness in a part of their body and if it was related to the treatment or medication they were currently taking;
- how they were going to cook and what they were going to do for food;
- if it was a woman she was concerned about what her husband and children would eat, their own diet;
- will they be able to cope;
- if they can shower;
- and several other concerns.

In Lynch, (2011) patients and carers concerns included whether they will be able to cope, how they were going to do everyday tasks such as cooking, shopping, cleaning, similar to the concerns identified in the interviews conducted with patients and carers. It is important to identify the information needs of patients and their informal carers at various stages. This when stored, can then be used to create personalised information packages which can then be provided to the patients. In the study by Wiles et al. (1998) it was found that the information needs of patients and carers following a stroke was not being met and a desire for personalised information was identified.

Many older patients who have problems like senility, dementia, lung infections and bladder infections are caught in a turntable of going in and out of hospital. They are stuck in a revolving door. Their children might be living away, and they might be shifted from department to department or care home to another. This is a common phenomenon and some even pass away without their family members or GP’s knowing. These problems should not be taking place, but they persist according to the discussion in the process mapping session. It is suggested that perhaps a liaison with care agencies will aid in helping reduce readmissions and an integration of the systems which allow the sharing of information would help speed up communication channels and processes. Emergency readmissions saw a 50% increase in in the NHS in England between 1998/1999 and 2007/2008 (Sg2 Healthcare Intelligence, 2011).

Readmission rates for 2001 to 2011 in Figure 21 show a steady increase, and the line of best fit suggests an increase in readmission rates in the years to come, in the event emergency readmissions are not mitigated.

The financial penalty for emergency readmissions borne by the NHS in England in 2011/2012 is £583.7M (Sg2 Healthcare Intelligence, 2011). Further to these results, a failure of tracking the needs assessment of patients amongst other reasons, emergency admissions too have risen. A recent report by the National Audit Office on emergency admissions indicates a 47.3% increase in emergency admissions over the last 15 years, with 5.3 million emergency admissions in 2012/2013, incurring a cost of £12.5billion (Morse, 2013). Examples of tools that help to integrate systems include a portal which could keep track of the information flow to and from both parties, and monitor the space availability, etc. in the care agencies and feeds the information back to the healthcare personnel during the DP process (Nemeth, 2007).

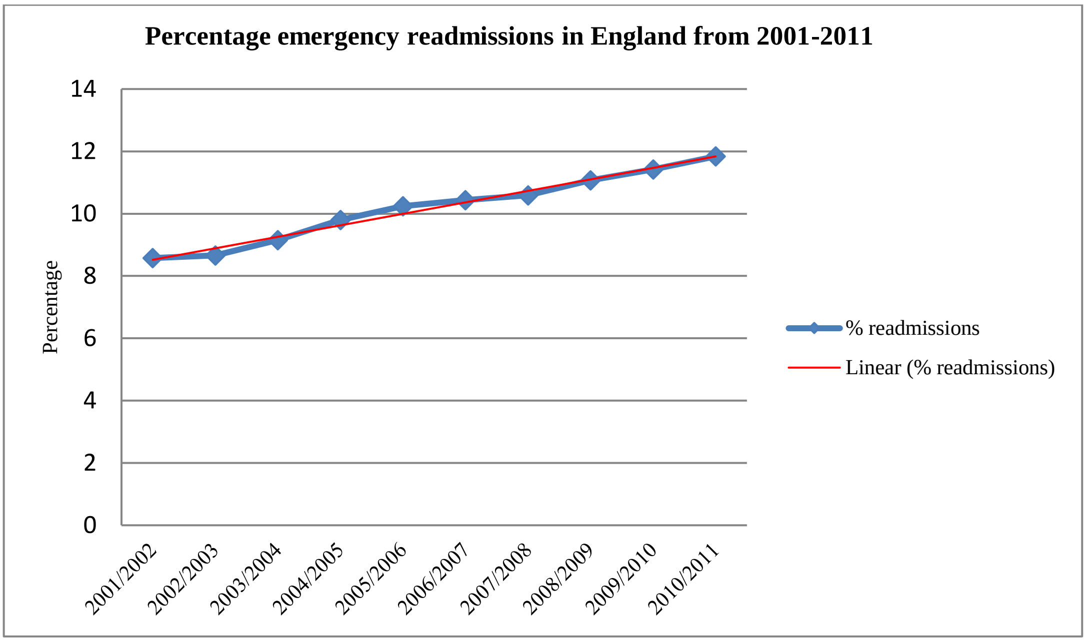
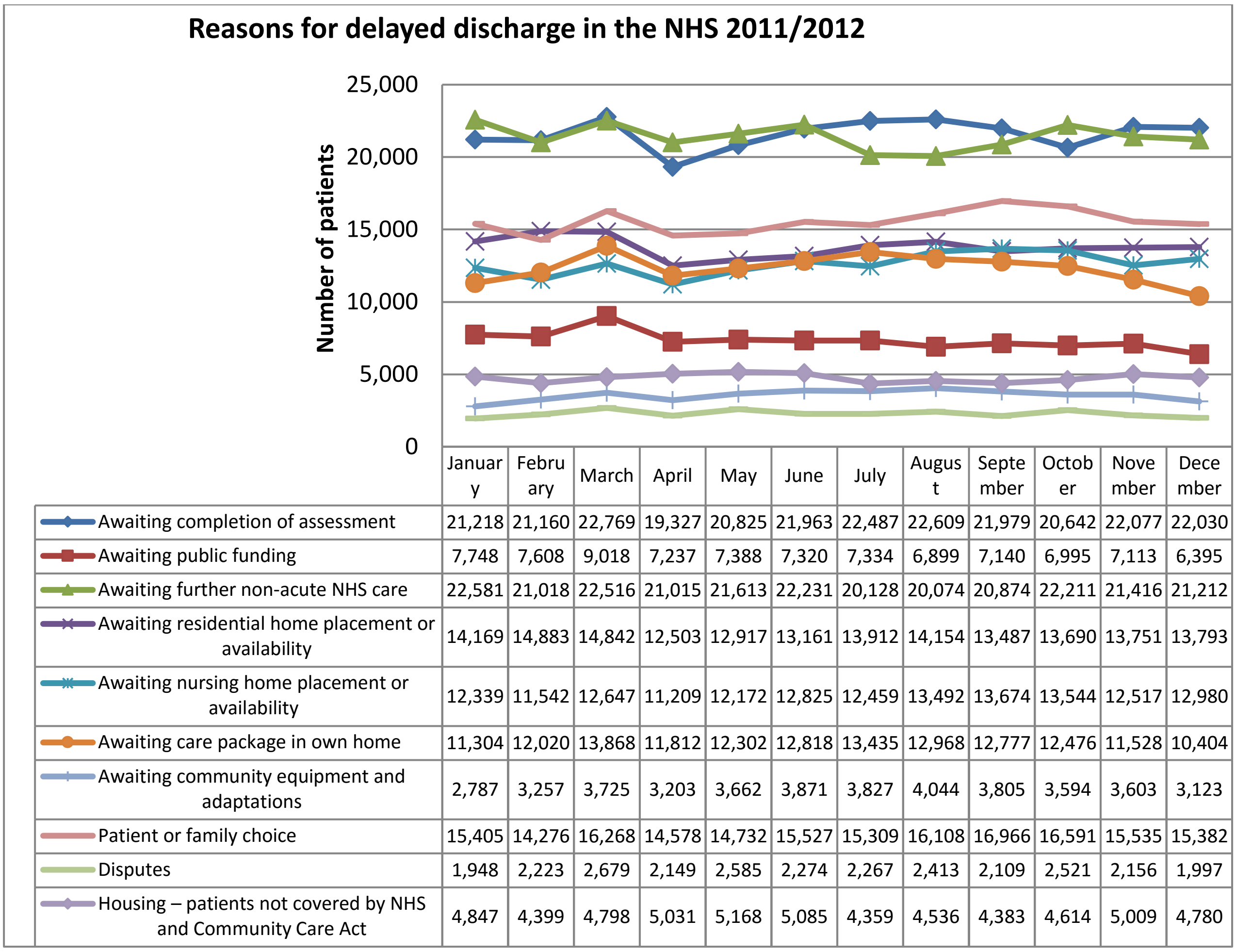


Figure 21. Percentage emergency readmissions in England from 2001-2011

Source: (The Information Centre, 2012)

Figures 22 and 23 show that awaiting further non-acute NHS care, is one of the few factors contributing greatly to delayed discharge in the NHS. Having done a thorough needs assessment, and having the information at hand, the healthcare personnel would know early on in the DP process what non-acute NHS care is required and would be able to make the necessary arrangements. This could reduce the delays in discharge which, according to the statistics from figures 22 and 23, ranges between 22,500 to 25,650 patients each month. If the average daily cost of an inpatient is £328 (Payment by Results team, 2012) and the average monthly delays in discharge range between 22,500 to 25,600, the average additional expenses incurred by the NHS daily is £273,300 and monthly £8.2 million. Figures 19 and 20 show the monthly numbers for delayed discharge, which correspond closely to the collated number of delayed discharges in Figures 22 and 23.The money spent on emergency readmissions and delayed discharge, along with the escalating figures, indicates the urgent need for a KM model that aligns people, processes and technologies in order to minimise the loss incurred due to a lack of process, communication and other factors which will be examined in further sections of this Chapter.



	January	February	March	April	May	June	July	August	September	October	November	December
◆ Awaiting completion of assessment	21,218	21,160	22,769	19,327	20,825	21,963	22,487	22,609	21,979	20,642	22,077	22,030
■ Awaiting public funding	7,748	7,608	9,018	7,237	7,388	7,320	7,334	6,899	7,140	6,995	7,113	6,395
▲ Awaiting further non-acute NHS care	22,581	21,018	22,516	21,015	21,613	22,231	20,128	20,074	20,874	22,211	21,416	21,212
× Awaiting residential home placement or availability	14,169	14,883	14,842	12,503	12,917	13,161	13,912	14,154	13,487	13,690	13,751	13,793
✱ Awaiting nursing home placement or availability	12,339	11,542	12,647	11,209	12,172	12,825	12,459	13,492	13,674	13,544	12,517	12,980
● Awaiting care package in own home	11,304	12,020	13,868	11,812	12,302	12,818	13,435	12,968	12,777	12,476	11,528	10,404
+ Awaiting community equipment and adaptations	2,787	3,257	3,725	3,203	3,662	3,871	3,827	4,044	3,805	3,594	3,603	3,123
Patient or family choice	15,405	14,276	16,268	14,578	14,732	15,527	15,309	16,108	16,966	16,591	15,535	15,382
Disputes	1,948	2,223	2,679	2,149	2,585	2,274	2,267	2,413	2,109	2,521	2,156	1,997
◆ Housing – patients not covered by NHS and Community Care Act	4,847	4,399	4,798	5,031	5,168	5,085	4,359	4,536	4,383	4,614	5,009	4,780

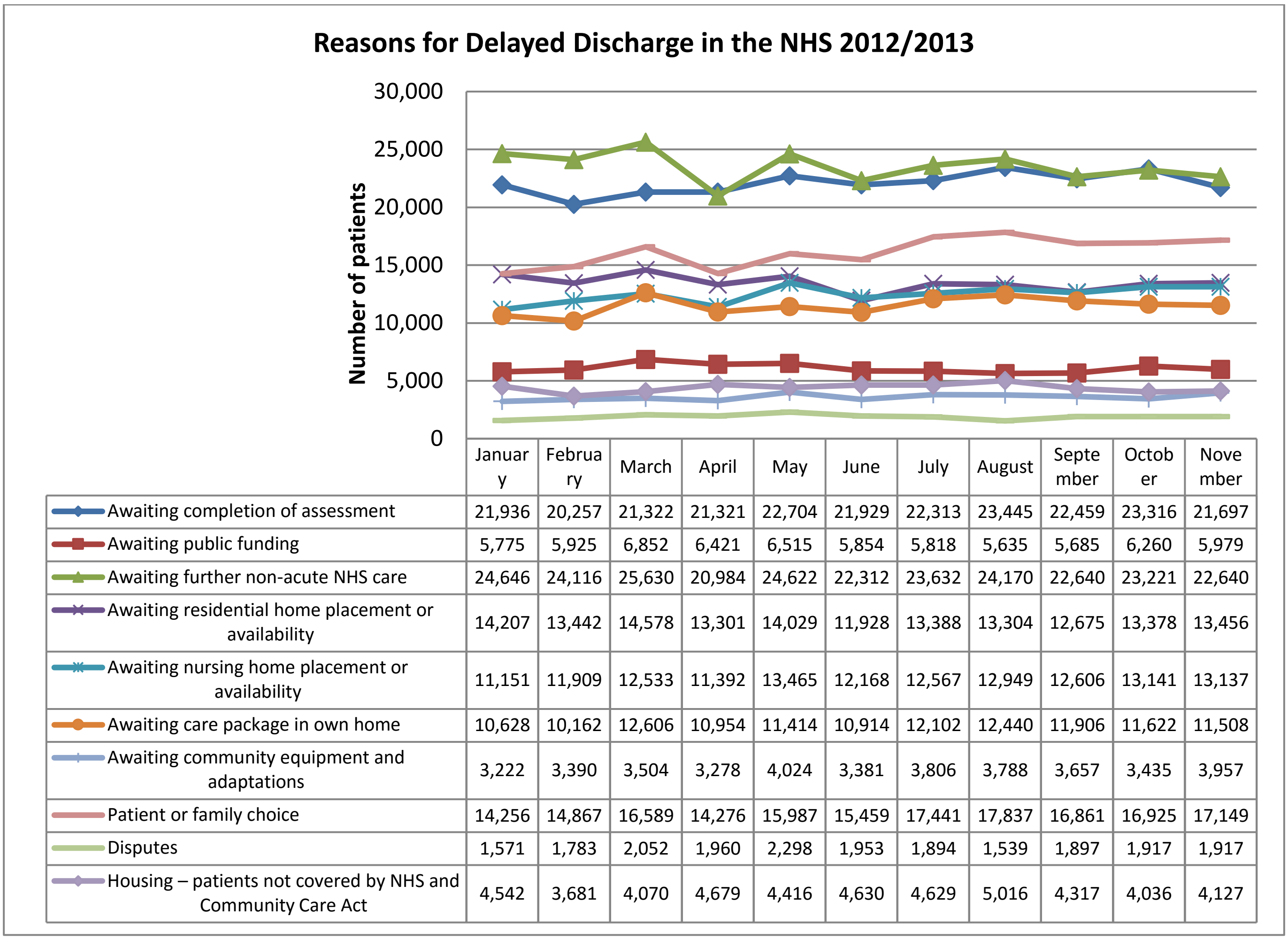
Figure 22. Reasons for delayed discharge in the NHS 2011/2012

Source: (NHS England, 2012)

5.2.2.2 Equipping patients and carers with information to recover at home

Providing patients and carers with information following a diagnosis of conditions or specific health events has several benefits (Wiles et al., 1998). The benefits include:

- It reduces the levels of anxiety;
- it improves outcomes through greater adherence to treatment and rehabilitation;
- it improves the level of self-care;
- it contributes to patients sense of control;
- it results in greater patient satisfaction and improves the relationship between health care professionals, patients and their carers (Wiles et al., 1998).



	January	February	March	April	May	June	July	August	September	October	November
Awaiting completion of assessment	21,936	20,257	21,322	21,321	22,704	21,929	22,313	23,445	22,459	23,316	21,697
Awaiting public funding	5,775	5,925	6,852	6,421	6,515	5,854	5,818	5,635	5,685	6,260	5,979
Awaiting further non-acute NHS care	24,646	24,116	25,630	20,984	24,622	22,312	23,632	24,170	22,640	23,221	22,640
Awaiting residential home placement or availability	14,207	13,442	14,578	13,301	14,029	11,928	13,388	13,304	12,675	13,378	13,456
Awaiting nursing home placement or availability	11,151	11,909	12,533	11,392	13,465	12,168	12,567	12,949	12,606	13,141	13,137
Awaiting care package in own home	10,628	10,162	12,606	10,954	11,414	10,914	12,102	12,440	11,906	11,622	11,508
Awaiting community equipment and adaptations	3,222	3,390	3,504	3,278	4,024	3,381	3,806	3,788	3,657	3,435	3,957
Patient or family choice	14,256	14,867	16,589	14,276	15,987	15,459	17,441	17,837	16,861	16,925	17,149
Disputes	1,571	1,783	2,052	1,960	2,298	1,953	1,894	1,539	1,897	1,917	1,917
Housing – patients not covered by NHS and Community Care Act	4,542	3,681	4,070	4,679	4,416	4,630	4,629	5,016	4,317	4,036	4,127

Figure 23. Reasons for Delayed Discharge in the NHS 2012/2013

Source: (NHS England, 2012)

Providing patients with information has been found to positively impact a patient's recovery. Patients who have been provided with information prior to a diagnostic test or a surgical procedure have been found to experience less pain and fewer side-effects, to suffer fewer postoperative complications and to have faster recovery than those not receiving such information (Hayward, 1975; Wiles et al., 1998). Further to these benefits, when patients and carers are empowered with information about their diagnosis, it enables them to make informed decisions with regards to further treatment and care (Luker et al., 1995). The time they have to interact with healthcare personnel is used better as the conversation is two way rather than one way and it results in improved overall patient satisfaction (Luker et al., 1995; Wiles et al., 1998).

Patients in the primary research findings identified that booklets were provided to them containing information, and it was mentioned that the booklets were standard booklets and lack of reading the booklets as it had *'too many words'*. It can be seen from this that both the quality and quantity of information provided is important (Jarrett & Payne, 1995; Wiles et al., 1998). Therefore, simply providing booklets of information might not satisfy a patient's need to understand the information about a condition they are suffering with. The information needs to be personalised to an extent, simplified and in a form that is more easily read.

Providing patients and carers with verbal information is also important, as is indicated in the primary research both patients and carers wanted more verbal information. However it was also seen in the case of some patients, upon discharge some patients are still in pain and sometimes when they have are provided with too much information they tend to forget or to be subject to information overload. According to Wiles et al., 1998 the provision of verbal information has been shown to have limitations in patients, in that patients frequently forgot much of the information that was provided to them. It was also found that patients valued information that was written down for them personally.

When patients and carers are provided with written information that is personalised and understandable by them, it serves as a reference or a back-up to the information that was provided to them verbally, and in the event that a patient or carer might feel that they have forgotten something, the written information is useful for clarifying doubts whenever the need arises (Wiles et al., 1998). It allows for patients and carers to cross-reference when in doubt, without having to ring the healthcare personnel or a help line and minimises the possible mistakes that patients and carers can make with regards to their post-discharge care (Wiles et al., 1998).

Written information is purposeful when it is done well, meaning that detailed information in areas that patients and carers want must be given to them clearly and in accessible language (Wiles et al., 1998). The information provided to patients and their carers must therefore be tailored to their needs and personalised in language that is easily understandable by them. The results from the primary research indicate that both patients and carers valued information that was personalised to them, in comparison to the generalised discharge summaries that are currently posted to patients. 12 out of the 14 respondents said that the discharge summaries contained medical jargon and despite being able to understand or make out what was in the discharge summaries patients and their carers still felt the discharge summaries were more suited to the GP than to themselves. When patients were asked if they could understand the discharge summary,

- 50% responded saying ‘yes’;
- 37.5% said ‘sort of’;
- 12.5% said ‘no’.

In the responses from the care quality commission, when asked if the respondents could understand the discharge summaries:

- 75% said ‘definitely’;
- 23% said ‘to some extent’;
- 3% said they ‘could not understand’.

The responses indicate that the prognosis and symptoms were explained clearly to patients, along with a lack of information in terms that were simple to patients, and patients having to wait for discharge summaries to obtain a tangible piece of information on what their diagnosis is all about.

When asked if the symptoms, prognosis, recommendations, medications and dosage details were given to patients in writing:

- 62.5% of the patients responded saying that a general one was provided to them;
- 37.5% said ‘no, they didn’t receive anything’.

Similarly in the study by the care quality commission, when asked ‘Were you given written or printed information about what you should or should not do after leaving hospital’:

- 67% responded saying ‘yes’;
- 33% responded saying ‘no’.

The results indicate a similarity in lack of clear explanation of the prognosis and symptoms to patients, and a lack of providing information in simple terms.

5.2.2.3 Technologies for aiding home recovery

With the use of technologies such as clinical portals and electronic health records, relevant information can be pulled together to generate such a personalised and tailored information "canvas" for the patient and carer to take home for future reference. It is termed canvas as it proposed to be in the form of a comprehensive one paged document that provides bite sized and personalised information, which prompts links for further information. The information canvas can be provided on paper or an electronic copy can be made available and accessed with the use of a username and password to access it. The mode in which the canvas is presented to patients and carers can be left to their choice. The desire for information and improved communication of information between healthcare personnel, patients and carers was identified as one the themes that stood out amongst others from the primary research. Almost all the respondents indicated a desire for more information with regards to their condition, and to be more involved. It became increasingly evident that despite guidelines of the DoH emphasising the involvement of patients, an in depth involvement of patients which involves patients being enriched with knowledge about their prognosis, symptoms and medication is lacking. Patients and their carers indicated that they were not involved in the decision making process regarding their discharge and future care. Detailed information about the causes and prevention of their condition can help people to better understand what they are experiencing, help them to take the necessary precautions and regain a sense of control over their lives. Furthermore being provided with relevant, personalised information helps carers to feel less helpless and more involved, in that they feel they can actively participate in helping the patient recover, rather than wonder if what they are doing is or is not right, or feel like they are not contributing in any way while the patient is suffering (Wiles et al., 1998). Carers indicate that sometimes they tended to restrict the patients from doing things, in fear of what effect that would have on their condition. Being provided with the correct clinical and practical information can help in this case as it provides patients and carers with guidelines and a framework to work around (Wiles et al., 1998).

When carers are not provided with the necessary practical and clinical information they find themselves unsure about the level of care that they need to provide to patients. Similarly the patients find themselves unsure about the services that are available to them outside hospital. Empowering patients with knowledge about their prognosis and symptoms allows them to have a better quality of life, as they start to be actively involved in their recovery, taking charge of the decisions that need to be made for their recovery or their care. Without such information, patients and carers find themselves having unrealistic expectations about the extent of their recovery and subsequently experience distress when the outcomes differ to their expectations (Wiles et al., 1998). Similarly patients and carers find themselves overwhelmed with information provided to them by alleged experts who have experienced similar problems, all of which might be helpful but which is not the same as official information by healthcare personnel (Jarrett & Payne, 1995). Patients have indicated that upon their return home, the ‘information gap’ became apparent while re-adjusting to domestic life after discharge (Worth et al., 2000).

5.2.2.4 Personalised information for patients and carers to recover at home

A desire for personalised information was evident from the research, patients and carers mentioned that the information provided to them was in the form of a booklet, it had many words, it was the standard information provided to all patients with a similar condition. The presentation of the information, the heavy use of medical jargon and the lack of personalisation discouraged patients and carers from taking the information provided to them seriously. It was also seen that many patients and carers indicated that they felt confused. Providing patients and carers with blanket information might meet some of their information needs, however as previous research shows (e.g. Murray, 1989; Wiles et al., 1998) standardised information is more likely to have less of an impact than personalised information. Patients in the participation group were asked if bite-sized information describing their prognosis, symptoms, recommendations and links to further information and reading would be helpful. The patients responded positively, indicating that being provided with such information would help with the recovery at home, as being provided with too much information in the form of booklets put them off reading through the information.

Some information needed by patients such as the resources available, the day to day care, etc. is widely available and therefore the need to personalise such information might not be an absolute necessity. Providing patients and carers with personalised clinical and practical information is vital as it has the potential to result in an improved quality of life for both the patients and carers (Wiles et al., 1998). Providing individualised information to patients and carers with relation to prognosis and recovery can be perceived as problematic, as making specific predictions might not always be helpful in case the predictions take a turn in another direction (Wiles et al., 1998). This could result in healthcare personnel having to answer many more questions as to why a patient’s recovery does not mirror the predictions and may jeopardise the integrity of the healthcare personnel. It is not the intention to provide conflicting information to patients and carers which leads in further confusion. Initiatives such as evidence-based healthcare and the Map of Medicine have shown a step forward and progress in providing patients and carers with the information they require (NHS Connecting for Health, 2012). However, they have seen ‘slow penetration in acceptance and usage amongst healthcare personnel and an even slower penetration in facilitating patients and carer usage’ (Hannan, 2011). A step further would be to provide patients and carers with fuller information which does not make unrealistic predictions of the patient’s recovery. Information such as how specific physical and psychological symptoms can be managed, the specific treatment plan, the period of the treatment, information of this nature would serve purposeful in meeting the needs of patients and carers, and avoids detailed information about recovery as the degree of recovery varies from patient to patient (Wiles et al., 1998; Murray, 1989; McMurray et al., 2007).

The process of deciding what information is pertinent to each individual and deciding what information needs a patient and carer has requires consultation with both patients and carers as their information needs are highly individual and unpredictable (Worth et al., 2000). This can be considered a time consuming process, however with the use of clinical portals, patient portals, electronic health records, and evidence-based medicine, databases can be used to store and retrieve information according to personalised needs of patients and carers (Chunsheng, 2000; Spindel, 2009; Nemeth, 2007). The implementation of these methodologies would also prevent over promising and providing unrealistic expectations about recovery to patients and would work hand in hand with multi-disciplinary team meetings in providing the required information to healthcare personnel when needed, allowing for more informed decisions to be made with regards to DP.

A possible argument against the implementation of technologies such as clinical portals and electronic health records could be the high cost of purchasing the equipment, software, training and implementation. The long term benefits in terms of reduced costs of emergency readmissions, delayed discharge, and lives lost, costs currently borne by the NHS due to lack of organisation and distribution of information outweighs the initial high cost of implementation of the technologies proposed. The NHS does spend billions of pounds on big scale systems, however spending wisely on systems that are needed and have a cost benefit, can save money. The information that patients would need includes:

- A description of their prognosis, symptoms;
- what would need to be done, should they encounter any of the symptoms described;
- information such as whether a patient should take a bath, shower;
- the kinds of food and drink they should and should not be consuming;

- the physical activities they should and should not be doing;
- are they fit to fall pregnant for instance?
- should they be taking any supplements and if so what supplements should they be taking?

If the canvas is provided online, patients and carers can be directed to suggested links for further reading. It can also allow for suppliers to place advertisements and this can be controlled ensuring that the products being displayed are relevant and of quality. Useful phone numbers can be provided such as emergency lines, community resources, email addresses, links to forums, chat groups for people to discuss their symptoms and share experiences.

5.2.3 Coordination and communication between departments in the NHS

From the process mapping sessions it was identified that when a decision to discharge a patient is made, there are so many discussion topics and forms to deal with when transferring a patients and this has to be done while the patient is in hospital. All this has to be done within a time frame. These things are done manually, and if they can be automated, or if they used a system such as a portal then the required information can be “pulled” and can help reduce the time taken to fill forms. A risk assessment is carried out on a patient, but as seen from the questionnaires, many of the risk assessments are done to tick a box, rather than to engage with patients. One of the highest contributing reasons internal to the NHS for a delay in discharge is ‘awaiting completion of assessment’. As information sharing is delayed between departments, and as one department waits for another to provide information before deriving conclusions on diagnosis, delays start to build up which as seen in Figures 22 and 23, according to the statistics provided by the Department of Health is one of the highest contributing factors. This indicates that sharing information between departments in a timely manner is crucial to the discharge of a patient, without causing a hold-up and having an impact on waiting lists.

5.2.3.1 Coordination of processes and information between departments

Currently GP systems and other systems are not coordinating consistently; they are to a certain extent in some trusts while not in others. They are not coordinating due to the expense it will incur and due to political reasons. Interoperability is therefore prevented or hindered because of cost and politics and interoperability could result in cost savings in terms of correspondence time and postage cost.

When a patient is to be discharged the different departments that a patient is involved with includes the administration, GP’s, physiotherapist, nurses, therapists, medics, nutritionist, pharmacy and social care. These departments therefore ideally should be interlinked, as there are different departments such as oncology, haematology and others that require the sharing of information and communication in order for decisions to be made. Similarly, a patient's nutritional pathway needs to be considered. Currently, from the process mapping sessions, it was observed that the nutrition and hydration pathway is separate to the physical health pathway, the pathway that determines the discharge of a patient from hospital. Disjointed processes do not encourage information sharing and not encourage communication amongst different departments. One of the participants of the process mapping sessions, when the issue of the pathways being disjointed was discusses remarked saying *'isn't it common sense to merge the pathways together so repeat questions aren't asked?'*. If it is common sense, it brings about the next question, why isn't it being implemented? It is repeat processes like this that are causing delays and burdening people with excessive paper work and form filling. It is a classic example of working in silos and not having the different departments talk to one another. The merging of pathways can result in knowledge from either pathway helping with the overall decision making of the patient.

Figures 22 and 23, displaying the reasons for delayed discharge for the years 2011-2012 and 2012 – 2013, indicate that one of the most frequent reasons for delayed discharge include those that require improved inter-department co-ordination or internal communication. These reasons include, awaiting completion of assessment, awaiting public funding, awaiting further non acute NHS care, awaiting residential home placement of availability and awaiting nursing home placement or availability.

5.2.3.2 Communication when discharge planning

It has become evident that two distinct forms of communication exist in discharge planning, from the primary and secondary research. One internal communication, communication that takes place between healthcare personnel within the hospital setting, and another external communication that takes place between healthcare personnel, patients and carers and between social and community care agencies. Healthcare professionals are heavily relied on as being a major source of health information; the nurses in particular are viewed as comfortable and reliable sources of information. This is as they are accessible and patients and carers perceive them as having adequate knowledge to provide information to the patient (Wiles et al., 1998). The findings from the primary research identify similarities, in patients gravitating towards nurses more for information as can be seen in question 10 in the findings table several of the patients when asked if they were comfortable talking to the healthcare personnel mentioned they were more comfortable talking to the nurses, while the doctors seemed to be in a rush. It is evident from the findings that patients genuinely wanted information and preferred to be kept "in the loop" about their condition and recovery. The findings indicate that the time pressure the healthcare personnel were under hindered sufficient communication with patients. This time pressure results in healthcare professionals not providing information at all or well (Wiles et al., 1998; Worth et al., 2000).

When patients and carers were asked if they felt the healthcare personnel communicated well with them, a few patients and carers mentioned that the healthcare personnel were in such a rush and that they wanted them to sit down and have a conversation. Another comment was that it was as though the healthcare personnel were attempting to tick a box by running through all the obligatory messages without actually considering if the patient or carer clearly understood what was being conveyed. In a study, time was perceived as a limited resource with all the competing needs of patients including the information needs having to be prioritised. The speed with which patients were passed through surgical and clinical wards left little time for their information needs to be addressed and assessed systematically (Worth et al., 2000). The time spent during ward rounds are an effective means of engaging with patients and carers, but doesn't seem to be exploited to its maximum potential. One of the reasons is attributed to the natural anxiety that obstructs when a healthcare persons approach is not patient centred.

When patients in the patient participation group were asked if they felt that healthcare personnel had enough time to spend with patients and carers, both patients said that the healthcare personnel do not have enough time. One patient said they had a better relationship with their GP due to the long standing relationship with the GP, and the longer duration of time they have to spend with the GP. Similarly the other patient in the patient participation group responded saying (Meeting 3.2B) *'They don't spend enough time. They should really, it would reduce the anxiety some patients feel'*. This indicates that when external communication is poor due to insufficient time to talk to patients, patients are left feeling confused. The patients in the patient participation group were also asked if healthcare personnel had more time to spend with patients, would patients and carers be better prepared to cope at home, both patients responded saying 'Most certainly' and 'absolutely', showing that currently both patients and carers are insufficiently equipped with information to recover at home.

During the process mapping session, when patient and healthcare personnel communication (i.e. external communication) was discussed, the participants mentioned the lack of time to talk to patients. It was seen that patients were not responsive to self-completing forms, texts, questionnaires and other such means, when they were used in order to capture information from patients. The dehumanising effect was not particularly working; dehumanising meaning that giving patients forms without actually surveying them by having a conversation with them was not working. This was seen in the researchers' experience as well, that patients liked to talk, and they liked expressing how they were feeling. This, therefore, highlights that time is an essential factor and change is an essential factor when planning discharge. Patients want to be engaged, and when patients are engaged their responses are better. When posed by change involving a different form of interaction, that 'dehumanises' the way in which information is collected, a resistance to change was evident.

Healthcare personnel may also lack the necessary skills to provide clear and appropriate information in simple terms, they also may lack the ability to pick up 'cues' from patients that the information that the patient has not understood the information that has just been provided to them or that they would like more information (Wiles et al., 1998). As seen in the research findings, patients indicate that they felt confused, they wanted to as their doctor questions and they wanted clear responses without medical jargon. Due to the hurried nature of healthcare personnel, patients developed an attitude of not opening up to healthcare personnel as they felt they would not receive the information they required. One former patient,(Meeting 1.1) when asked if she felt the healthcare personnel communicated well with her, commented:

> *'Not really, I wish I could get my consultant and sit her down and have a conversation with her. She is always in such a rush. She is easily excitable and I always come out feeling I wish I had more time with her. My husband just gets angry because he doesn't really understand what she is saying'.*

This shows poor patient, carer and healthcare personnel communication, insufficient time to talk to patients, a lack of empathy and failure to consider the patient and carers perspective. When patients and carers were asked if they felt their medication was explained adequately to them, most of them said that the medication was not explained to them. They picked it up from the pharmacy and read the instructions off the label.

- 12.5% of the patients said their medication was explained to them and 87.5% said their medication was not explained to them;

- 75% said yes their medication was completely explained to them;
- 17% to some extent;
- 8% did not explain from the care quality commission findings.

Similarly, when nurses were asked if the medication was explained to patients, two out of the three nurses interviewed responded saying that the medication is not explained, while one nurse said it varies according to the seriousness of the patient's condition. All four doctors responded saying that patients usually got the information they needed from the labels on the medication packages. This further highlights poor external communication, poor patient, carer and healthcare personnel communication, and not following the due process.

5.2.4 Accountability among healthcare personnel

Responsibility must be taken by healthcare professionals for the outcomes of discharge plans, as it is dependent on the individual skills of the members of the healthcare team (Atwal, 2002). In many instances the social aspects of patients are neglected during DP, due to professional reluctance to be associated with relatively unscientific tasks (Atwal, 2002). Psychosocial factors of patients, as previously discussed in Table 5 contribute largely to a patient's recovery and well being, hence the importance of taking the factors into consideration, despite its unscientific nature (Discharge Planning and ALC Policy Task Team, 2006; Mistiaen et al., 2007). The social aspects of patients needs need to be addressed alongside the medical aspects, the social aspects must be fed in to the medical aspects and decision making process of patients, allowing for a more informed decision-making process, in that the necessary arrangements, referrals, appointments, orders for equipments, and contacts are made ahead of time enabling the discharge plan to be formulated in due time (Atwal, 2002). In a survey of older people in nursing homes in 1995 it was found that many patients had been wrongly assessed and in another survey conducted in 1999 nurses did not initiate discussions with older patients moving from hospital to a care facility (Atwal, 2002) with confusion about whose responsibility it was to initiate such discussions (Atwal, 2002).

Discharge planning involves inter-professional collaboration, and therefore having assigned roles, tasks and knowing what role one plays in the DP process is important in ensuring that the stream of information is looked at in the decision making process. It is important to take accountability at the various stages of DP and to ensure that the information gained is fed back to the decision making process. It has been found that discharge problems are caused by poor communication and co-ordination between hospital based and community based professionals (Atwal, 2002). The problems are exacerbated by the involvement of different agencies, professionals and carers, both formal and informal, as each party has a specific responsibility for different aspects of health and social care. It is a classic case of ‘too many cooks spoil the broth’. However, if the different actors in the DP process were aware of their roles, the information they are to acquire and to feedback, the DP process would move smoothly as everyone works toward a joint goal.

An inpatient may require treatment and feedback from various departments in the hospital, and in order to gain an accurate picture of the patient for DP it is important to assemble the assessment results of the patient (Atwal, 2002). When joint goals are set and assessment results are assembled in one location, it makes the decision-making process a smoother process, as that is required to make informed decisions is available upon request and if not available, a reason as to why it is not available is identified. In a study by Atwal, (2002) nurses reported learning discharge skills when qualified and from hands on experience and not as a student. Nurses reported that they learnt about discharge planning through learning from experience and from problematic experiences. Tacit knowledge plays an important role in DP and Atwal’s study emphasised that the tacit knowledge gained over the years of planning discharge is not being disseminated in an efficient manner to other nurses. The efficient dissemination of knowledge will shorten the learning curve, allowing nurses to grasp the DP process faster and eliminate an element of confusion that might exist. The sooner healthcare personnel are prepared for the DP process, the smoother the DP process will be. This therefore emphasises the importance of making knowledge explicit, in the form of lessons learnt. Making knowledge explicit is not limited to medical information and the diagnosis of patients, making procedural knowledge explicit is important too. Making procedural knowledge explicit ensures that the processes are passed on to those responsible and allows for the new knowledge gained to be added to the processes thus allowing for continuous process improvement (Bali et al., 2002). It therefore aligns people with the processes, making the overall DP process more efficient (Wickramasinghe & Mills, 2001).

The relationship an inpatient establishes with the healthcare personnel during his or her hospital stay is less in depth in comparison to the relationship established with their GP (Worth et al., 2000). For some patients more information was obtained from the GP, which could be attributed to the greater length of time that is spent with patients, the less rushed environment and the trust that has been established due to the length of time a patient is known (Worth et al., 2000).

5.2.5 Coordination of medication

Seven out of eight patients and their carers, who were asked if the patient received their medication upon discharge, indicated that the medication was ready upon discharge. One former patient (Meeting 1.8) however responded by saying;

> *'I was made to wait for a long time because of the medicines. In the end they said come back when they give me a call to pick up the medicines. They called me the next day and said the medicines were ready for collection'*, and their carer responded by saying; *'We had to go back the next day to pick up the medicines. I wouldn't say it was ideal but we just wanted the medicines and to have as little to do with the hospital really'*.

A guideline set by the Department of Health is to co-ordinate medication with the pharmacy upon the admission of the patient. The nurses were also asked during the interviews if patients received their medication upon discharge and all the nurses responded positively, however they indicated that there was some waiting involved in some cases for the medication to be prepared. The waiting sometimes involved a few hours, which aggravated some patients and families who just wanted to go home. When asked, two out of the four doctors responded that the patients did receive their medication on the same day, and included that there was some waiting involved in receiving the medication, while some patients had to return the following day to pick up their medication. The other doctors did not respond to the question without indicating why they had not responded.

5.3 Process mapping results and statistics obtained from the Department of Health

A sample process map used by the SSSHT that was used during the process mapping session can be found in Figure 24. The process map indicates the sequence of events that take place, however neglects to include the documents and information required at each stage to make informed decisions. The next stage, an RCA, was inspired by the GT coding and the emergence of themes (IMS International, 2013).

5.4 Root Cause Analysis (RCA)

The barriers to DP and the problems resulting from poor DP (as described in Sections 3.7, 3.8 and 3.9), along with the systemic flaws which emerged from the primary research were coded further using a root cause analysis, and shown in an Ishikawa diagram as described in section 2.6.3. The factors were categorised according to the main themes and sub-factors of the themes and an initial root cause analysis was generated as seen in Figure 25. The choice to conduct a root cause analysis was further validated when the Ombudsman Service recommended Clinical Commissioning Groups to conduct a root cause analysis in serious cases in order to gain a better understanding of the nature and origin of the problem, thus being able to cater a customised solution using the personnel required for the task (Anon, 2014). Ishikawa diagrams are commonly used to identify the causes of a problem (Kenett, 2008). On the right hand side of the diagram is a box, the effect being examined is presented; in the case of this research DP. The main body of the diagram is a horizontal line from which stem the major factors involved as identified in the coding, and are represented as bones. The possible causes for the major factors were identified during the coding and are represented as smaller 'bones'. As a general rule, the more populated bones are the more influential factors, while the less populated bones (i.e. the 'bones' with fewer branches) are the less influential factors (IMS International, 2013). The factors internal to the NHS, factors external to the NHS and psycho-social factors of patients were separated in the analysis. The themes are a modification and a further analysis in comparison to the initial reasons that were causing inadequate DP as are depicted in Figure 6 from the initial literature review of the problems. The initial findings of the causes of inadequate discharge planning were as follows:

- Insufficient personalised patient knowledge;
- an excessive focus on targets;
- a lack of informed decision making;
- a lack of a holistic approach;
- a lack of communication;
- a lack of resource coordination.

Some of the factors have remained; while others have been 'drilled down' further highlighting the more deeply set problems. While coding the themes taking into consideration the primary and secondary research results, more themes emerged, which resulted in the development of another root cause analysis as seen in Figure 26. A further 'drill down' resulted in further themes such as, which will be described in detail in Sections 5.3.1 to 5.3.7:

- Insufficient personalised patient and carer knowledge;
- poor internal communication;
- poor external communication;
- insufficient holistic approach;

- focus on targets;
- human error;
- inefficient co-ordination of resources.

Knowledge and processes about patients and carers that should be used for the DP process, and that is currently not perused sufficiently were clustered together into the main theme of ‘Insufficient personalised patient and carer knowledge’. ‘Lack of communication’ was broken down into ‘Poor internal communication’ and ‘Poor external communication’. ‘Poor internal communication’ is the communication that takes place within the NHS and between the different departments. ‘External communication’ is the communication that takes place between healthcare personnel and external agencies such as social care, community care and other such agencies. ‘External communication’ is also the communication that takes place between healthcare personnel, patients and carers. ‘Lack of informed decision making’ became a component of the main theme ‘Insufficient holistic approach’, because when informed decisions are made, they are made when a holistic approach has been taken, and when there is accountability amongst healthcare personnel. The ‘Poor management of resources was clustered with ‘Poor resource coordination’, as they are a cause of poor resource coordination and the mismanagement of resources. The errors that were a cause and effect of a focus on targets emerged into a new theme, ‘Human error’. All errors have been clustered together as possible errors that are caused by people, who due to various pressures consequently have made errors. Problems such as “cost shunting”, insufficient time to talk to patients and carers are problems that arise due to a ‘Focus on targets’.

5.4.1 Insufficient personalised patient and carer knowledge

The results from the primary and secondary research indicate that sufficient information about patients is not being collected, stored and sufficiently reused. Therefore the right information is not being presented to the people involved at the right time. Systemic failures such as language and cultural barriers, poor knowledge of a patient’s circumstance, new medical problems posed by patients, lack of collecting informal information about patients and lack of sufficient information stored about patients along with the other factors as seen in the root cause analysis indicate that insufficient personalised knowledge is stored and used about patients and their carers.

5.4.2 Poor internal communication

Inter-departmental silos cause a breakdown in communication resulting in repeated processes, delays, and long waiting times. Problems such as waiting for a “declaration of chronicity”, meaning how long the symptoms will persist and what remedial measures can be taken, waiting for medication, waiting for discharge summaries and other such problems indicate a lack of appropriate internal communication processes between department(s).

5.4.3 Human error

Problems that might occur such as medication error, communication error, laboratory test errors, patient identification error and wrong diagnosis indicate that these problems are a result of human error.

5.4.4 Poor external communication

The information provided to patients and carers, along with the way in which information is shared and the communication between healthcare personnel, patients and carers indicates poor external communication. When patients’ medication is not explained to them properly, when patients do not receive a timely follow up, when they are not provided with information in simple terms by healthcare personnel, a breakdown in external communication is indicated.

5.4.5 Insufficient holistic approach

A lack of accountability among healthcare personnel, a hidden mix-up that might present itself; a failure to track the multiple pathologies of patients indicates that currently when the discharge planning is carried out indicate that, a holistic approach is not being taken.

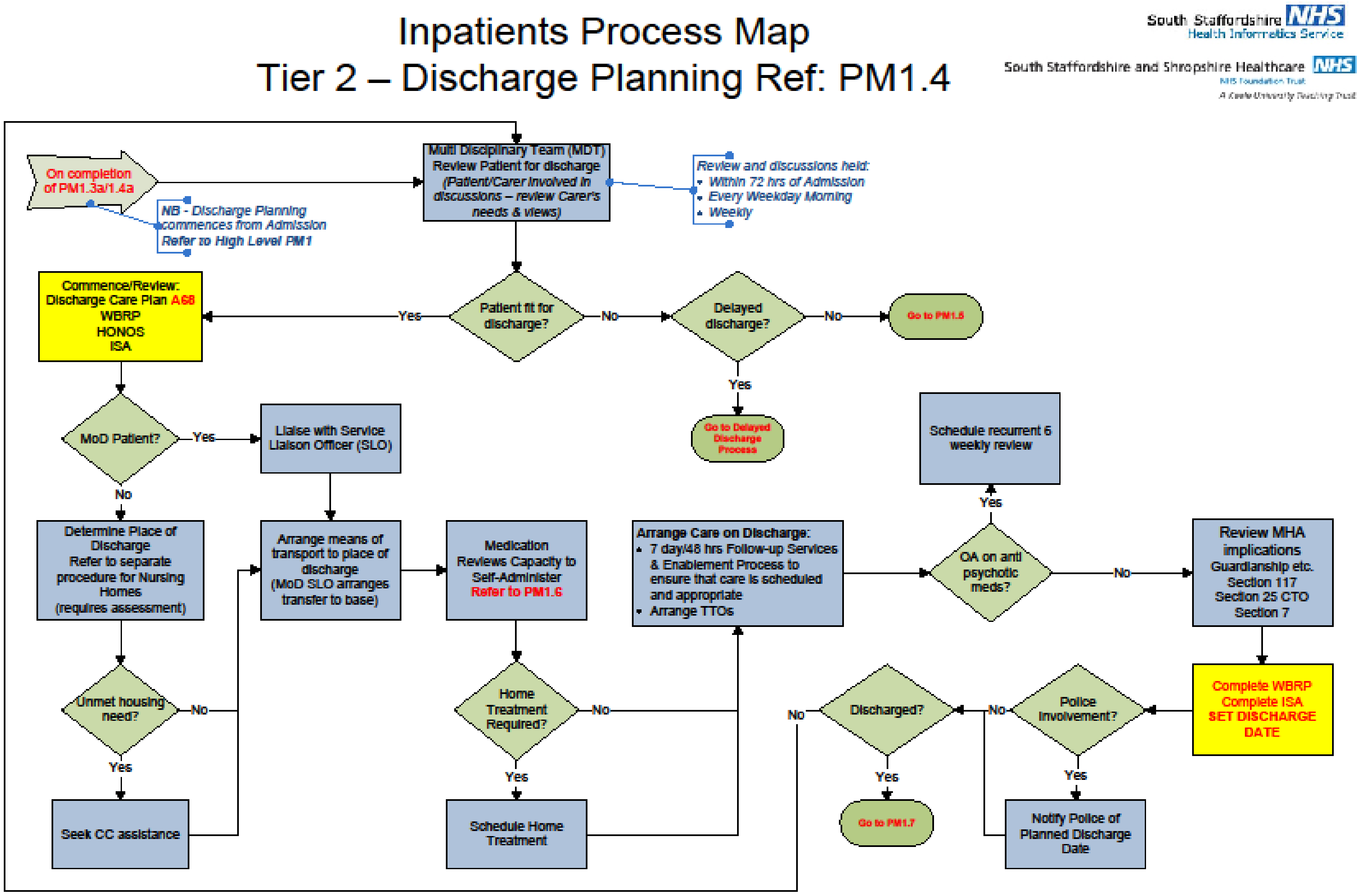
5.4.6 Focus on targets

When healthcare personnel indicate that they do not have enough time to spend with patients and carers, the reports on “cost shunting”, and having to meet the pressure of targets indicates that currently the discharge planning is target driven with a lack of focus on patient-centeredness. A focus on targets moves the focus away from patients who should be at the centre of the discharge plan.

5.4.7 Poor resource coordination

Poor bed and staff management indicates poor resource coordination. Similarly a lack of documentation of a discharge plan, healthcare personnel working beyond competency, and patient transfer between nursing units show that resources are not coordinated appropriately.

Figure 24. Inpatient Process Map. Discharge Planning Source: Process Mapping Session 2012



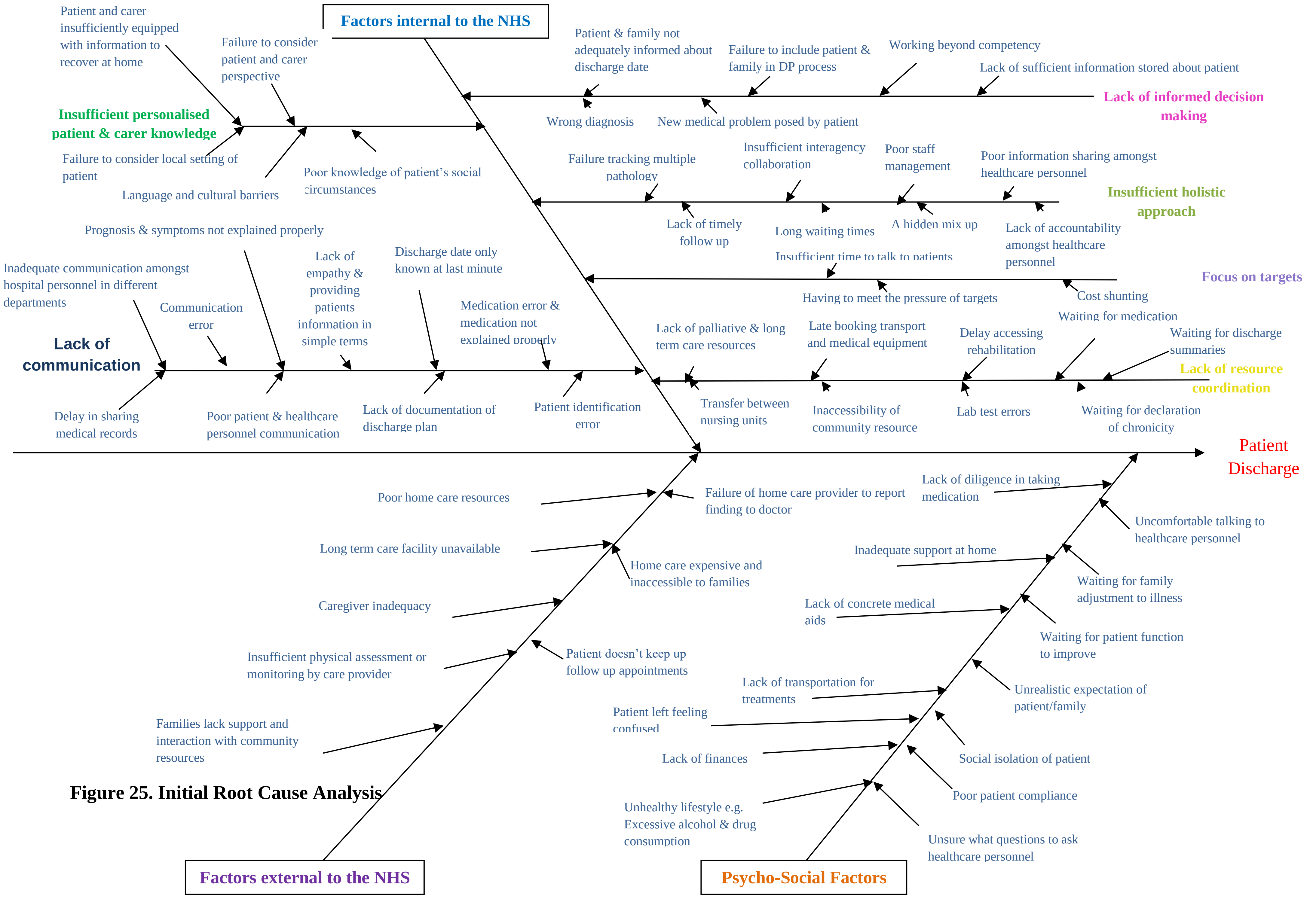


Figure 25. Initial Root Cause Analysis

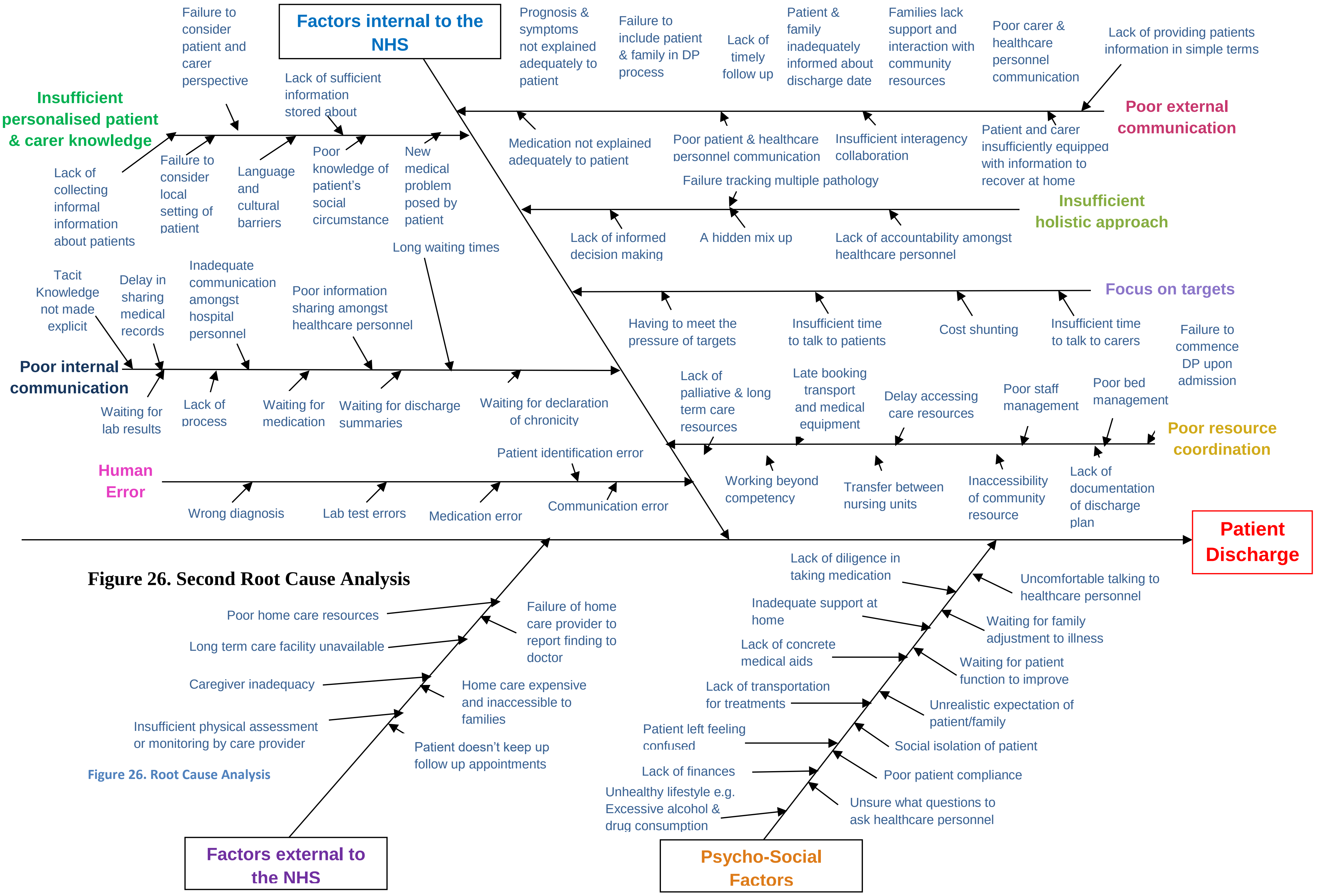


Figure 26. Second Root Cause Analysis

Figure 26. Root Cause Analysis

5.5 Pareto analysis

A Pareto analysis was carried out on the results obtained from the root cause analysis and the primary research. The Pareto analysis was carried out in order to identify the problems on which focus can be placed for most for improvement. Approximately 20% of the causes result in 80% of the effects according to Pareto's 80/20 rule (Keeling & Officer, 2000). Therefore in order to make a difference it is essential to focus on the issues that offer the greatest potential for improvement (NHS Institute for Innovation and Improvement, 2008). The Pareto analysis presents results based on the root cause analysis, which has been further reinforced by the results obtained from the process mapping sessions, the literature found from the literature review and the statistics obtained from the NHS. Based on the results from the Pareto analysis (as seen in Figures 27 to 31), it can be seen that approximately 80% of the effects come from 20% of the causes, and 20% of the causes that need concentration are:

- Improved internal communication;
- improved external communication;
- personalised patient and carer knowledge.

This does not neglect the four other factors, however merely emphasises that by aligning the processes encompassing these three factors, the overall potential for improvement is greater. The results of the Pareto analysis, the RCA and the themes which emerged from the GT coding are incorporated into the KM model for DP which is be presented in Chapter 6.

5.6 Knowledge Management for Discharge Planning

Figure 14 emphasises that for knowledge generation people, processes and technologies need to be aligned to one another. The people of key importance, (i.e. the stakeholders of DP) include patients, carers, social and community care agencies and healthcare personnel. The processes need to be put in order according to the people and the technologies that are in place. Figures 14 and 15 are used as a basis for the development of KM model for DP as proposed in this research. Figure 15, the Knowledge Value Chain (Shah et al., 2007) suggests the knowledge factors that need to be identified in order to align people, processes and technologies as also suggested by Wickramasinghe. Table 10 incorporates the themes that emerge from the coding using grounded theory. The table lists the themes, the systemic flaws that resulted in the emergence of the themes, along with an identification of whether the flaws could be categorised into knowledge requirements or knowledge actions.

Themes	Features	Knowledge Requirement/ Action
Insufficient personalised patient and carer knowledge	Patient and carer insufficiently equipped with information to recover at home	Knowledge Action
	Failure to consider patient and carer perspective	Knowledge Requirement
	Lack of sufficient information stored about patient	Knowledge Requirement
	New medical problem posed by patient	Knowledge Requirement
	Poor knowledge of patient's social circumstances	Knowledge Requirement
	Language and cultural barriers	Knowledge Requirement
	Failure to consider local setting of patient	Knowledge Requirement
	Lack of collecting informal information about patients	Knowledge Requirement
Poor Internal Communication	Tacit Knowledge not made explicit	Knowledge Action
	Delay in sharing medical records	Knowledge Action
	Inadequate communication amongst hospital personnel	Knowledge Action
	Poor information sharing amongst healthcare personnel	Knowledge Action
	Long waiting times	Knowledge Action
	Waiting for lab results	Knowledge Requirement
	Lack of process	
	Waiting for medication	Knowledge Requirement
	Waiting for discharge summaries	Knowledge Requirement
	Waiting for declaration of chronicity	Knowledge Requirement
Human Error	Patient identification error	Knowledge Requirement
	Wrong diagnosis	Knowledge Requirement
	Lab test errors	Knowledge Requirement
	Medication error	Knowledge Requirement
	Communication error	Knowledge Requirement
Poor External Communication	Prognosis & symptoms not explained adequately to patient	Knowledge Action
	Failure to include patient & family in DP process	Knowledge Action
	Lack of timely follow up	Knowledge Action
	Patient & family inadequately informed about discharge date	Knowledge Action
	Families lack support and interaction with community resources	Knowledge Action
	Poor carer & healthcare personnel communication	Knowledge Action
	Lack of providing patients information in simple terms	Knowledge Action
	Medication not explained adequately to patient	Knowledge Action
	Poor patient & healthcare personnel communication	Knowledge Action
	Insufficient interagency collaboration	Knowledge Requirement
Insufficient holistic approach	Failure tracking multiple pathology	Knowledge Requirement
	Lack of informed decision making	Knowledge Requirement
	A hidden mix up	Knowledge Requirement
	Lack of accountability amongst healthcare personnel	Knowledge Requirement
Focus on targets	Having to meet the pressure of targets	Knowledge Requirement
	Insufficient time to talk to patients	Knowledge Requirement
	Cost shunting	Knowledge Requirement
	Insufficient time to talk to carers	Knowledge Requirement
Poor resource coordination	Lack of palliative & long term care resources	Knowledge Requirement
	Late booking transport and medical equipment	Knowledge Requirement
	Delay accessing care resources	Knowledge Requirement
	Poor staff management	Knowledge Requirement
	Poor bed management	Knowledge Requirement
	Failure to commence DP upon admission	Knowledge Action
	Working beyond competency	Knowledge Requirement
	Transfer between nursing units	Knowledge Requirement
	Inaccessibility of community resource	Knowledge Requirement
	Lack of documentation of discharge plan	Knowledge Requirement

Table 10. Themes emerging from Grounded Theory coding

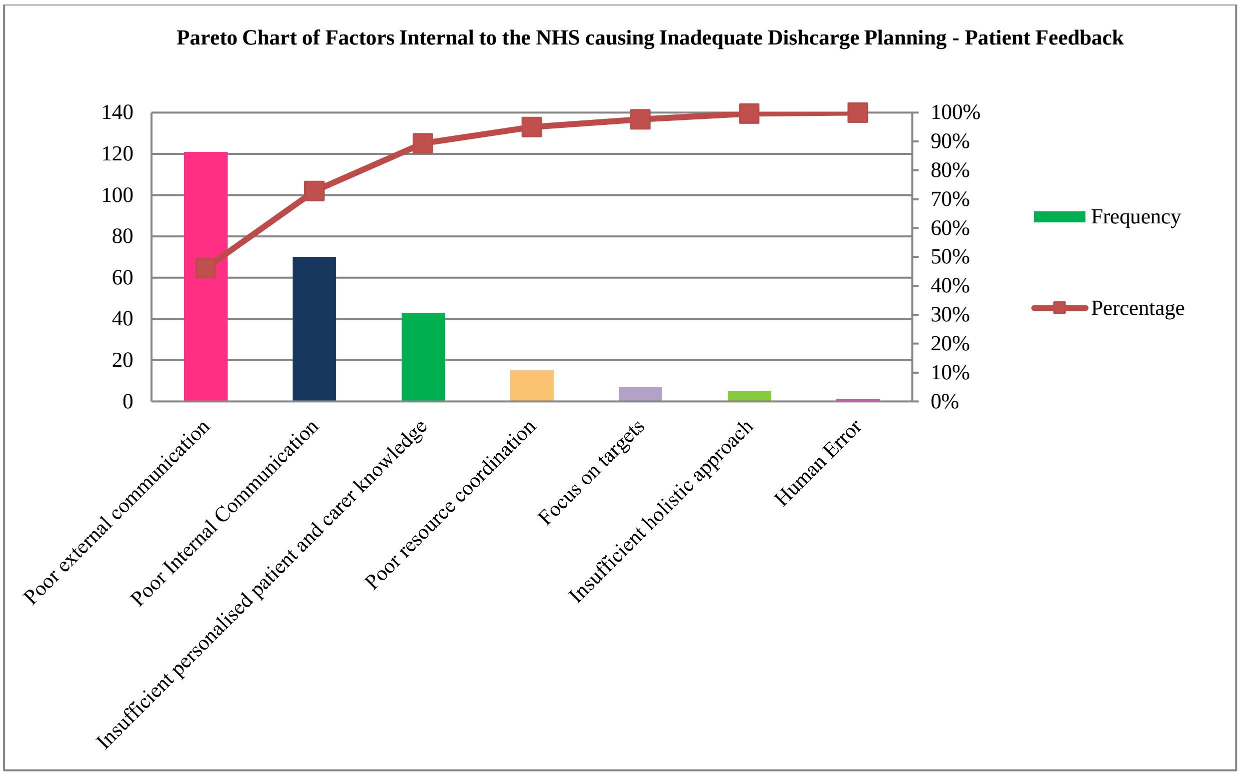


Figure 27. Pareto chart of factors internal to the NHS causing inadequate DP. Based on patients' responses

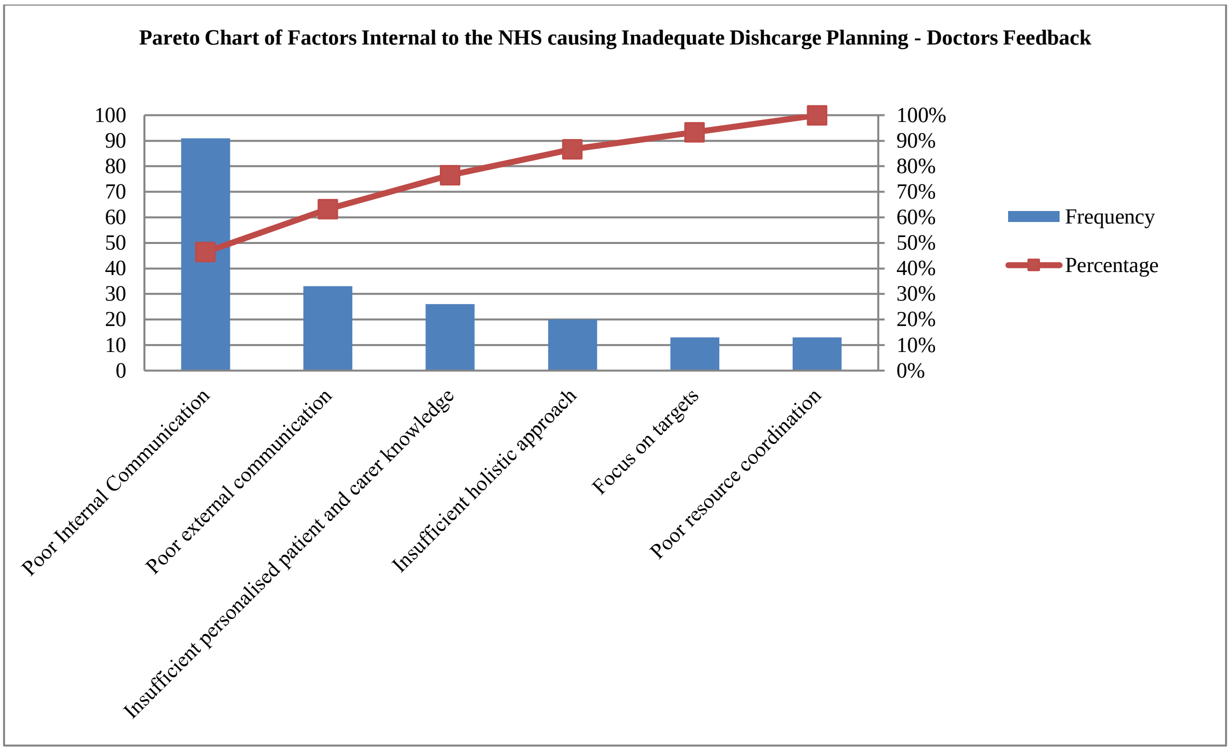


Figure 28. Pareto chart of factors internal to the NHS causing inadequate DP. Based on doctors' responses

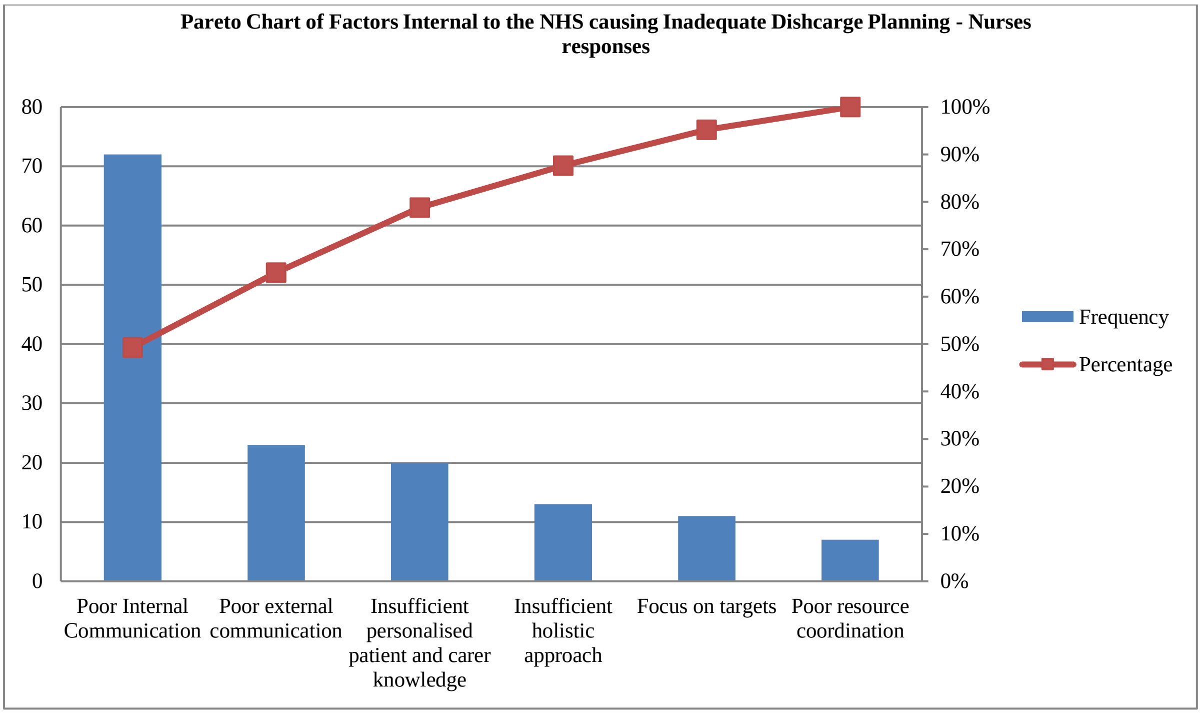


Figure 29. Pareto chart of factors internal to the NHS causing inadequate DP. Based on nurses' responses

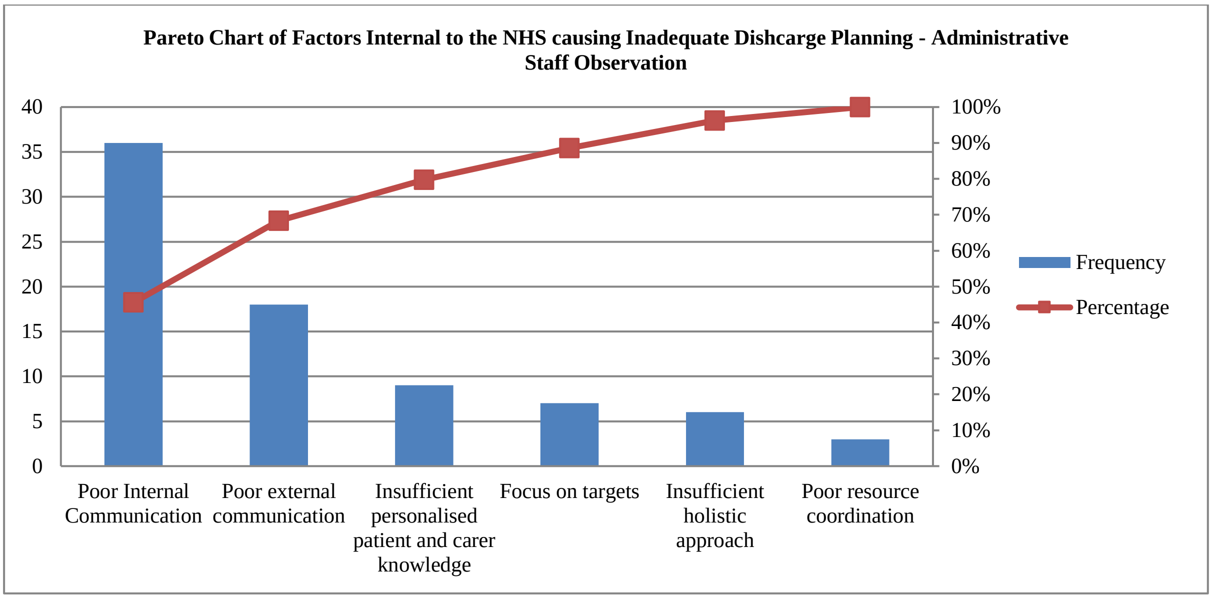


Figure 30. Pareto chart of factors internal to the NHS causing inadequate DP. Based on administrative staff responses

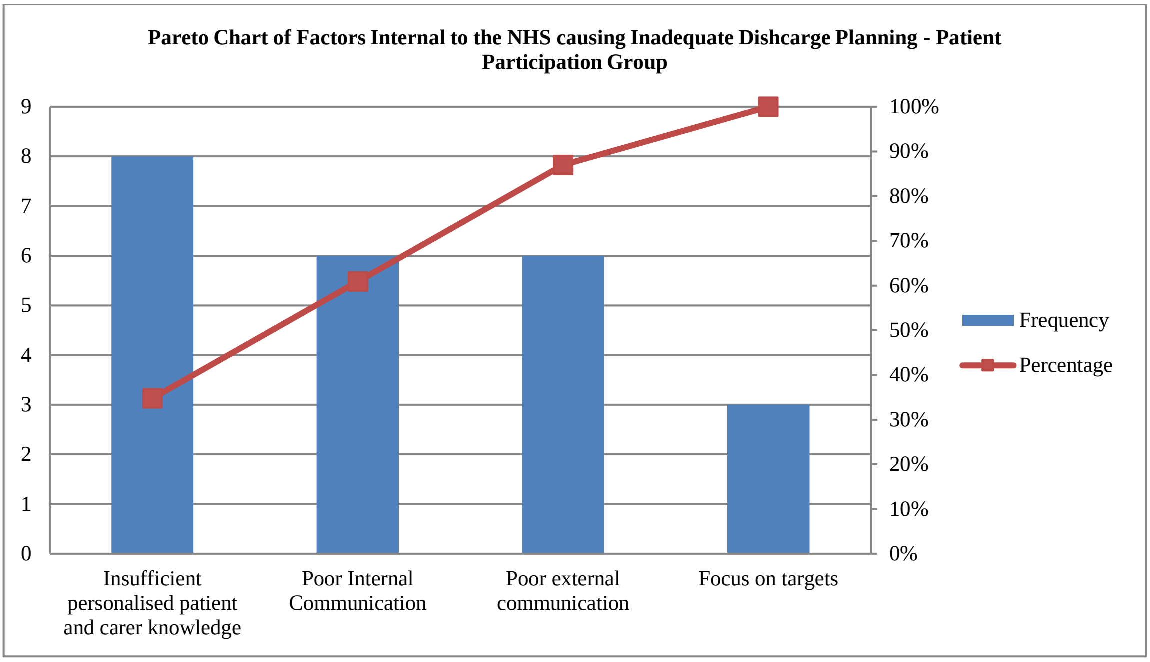


Figure 31. Pareto Chart of Factors Internal to the NHS causing Inadequate DP. Based on Patient Participation Group responses

5.7 Conclusion

Interviews with patients and their carers generate valuable insight and a better understanding of the patients’ and carers’ perspectives and of their concerns. The findings in Chapter 5 further highlight that communication, the provision of information across the whole discharge process and feeding-back information about a patient and/or their carer to the DP process is important and that there is scope for improvement in the current methods. When patients and carers have poor experiences with the NHS it dissuades them from trusting the organisation and the healthcare personnel in the future (Worth et al., 2000). This can result in patients and carers avoiding sharing information about their symptoms or could even result in patients avoiding seeking early care (Lynch, 2011). Avoiding early care treatment can have a negative impact as in some presentations (e.g. strokes) the sooner the patient seeks treatment the smoother will be the recovery journey. In addition some diseases can be detected more easily if presented earlier and the cost implications to the NHS would be less than with patients detected at a later stage, who require longer and more expensive treatment, medication, procedures and care (Worth et al., 2000). Both the KM models as depicted in Figures 14 and 15, along with the findings developed in Table 10 will underpin the development of the KM model for DP that will be presented in Chapter 6.

Chapter 6. The KM-based DP Model

6. Introduction

The fifth chapter describes the results obtained from the primary research using GT. It also provides a critical analysis of the current situation. From this analysis it becomes increasingly evident that a lack of an integrated process, coupled with the existence of silos of information and the lack of an efficient means of managing knowledge exists within the NHS and that this is creating a problem with regard to DP that is likely to continue. Several themes emerge from the primary research, which will be further explored in the current chapter. Chapter 5 also revisits some of the KM models that are discussed in Chapter 4, using the models as a guide to Chapter 6 and synthesising the themes from the GT into a KM Model for DP, by uniting KM and DP into an effective and workable knowledge-based framework for making decisions about patient discharge. The models that were described in Chapter 4 prompted areas to focus on and research further in to when developing the KM based DP model. Several drafts of the model were created and built upon through cross referencing the KM models in Chapter 4 and the analysis from the data collected.

6.1 Description of the components of the KM based DP model

As previously described, the NHS is a system consisting of complex components interacting with one another. Fluidity between these components is imperative for ensuring a smooth flow within the system. The previous chapter identifies systemic features and components that were missing or were flawed, thus hindering the fluidity of the DP system in the NHS. The KM based DP model ensures people, process, technology are taken in to consideration as described in the Wickramasinghe, 2006 Model as seen in Figure 14 and ensures that the decision to discharge a patient is derived by considering the Knowledge requirements, knowledge assets, knowledge actions, knowledge outcomes and the knowledge potential which taking in to consideration the management and environmental factors as proposed in The Knowledge Value Chain (Shah et al., 2007) in Figure 15.The research identifies factors requiring co-ordination for the convalescence of a patient, and several barriers to discharge planning were highlighted. These seven components include:

- Poor internal communication;
- poor external communication;
- a lack of personalised knowledge of patients and carers;

- an insufficient holistic approach;
- poor resource co-ordination;
- meeting targets;
- avoiding human error.

The coordination of these seven components will help to improve the problems currently faced by inadequate DP, as a more holistic and personalised approach is taken, helping to maximise efficiency and to co-ordinate resources in the NHS, while saving costs in the long term, improving coordination and communication with the external community and care resources and improving patient satisfaction. The barriers highlighted above have resulted in problems such as delayed discharge, increased emergency readmissions, long waiting lists and bed blocking, all of which have been attributed to poor DP (Kripalani et al., 2007; Hogan et al., 2012; Care Quality Commission, 2013). The responses obtained from the interviews with healthcare personnel, patients and carers highlighted the barriers, which have been incorporated into the proposed KM model. Managing the knowledge of patients, carers, healthcare personnel about the processes and technologies is important as all these sources of knowledge are part of KM and play a crucial role in planning a better discharge plan.

6.2 The contents of the KM based DP model

The information in Table 11 shows how the components identified from the themes that emerged during the grounded theory coding, was translated into components of the KM model. The components have been arranged in order of their priority, based on the results from the root cause analysis in Section 5.3 and the Pareto analysis in Section 5.4

Components hindering smooth process flow in current system →	**KM model component enhancing improved DP**
Poor internal communication	Internal communication process
Poor external communication	External communication process
Lack of personalised patient and carer knowledge	Personalised patient and carer knowledge
Focus on Targets	Focus on Targets with an emphasis on patient centeredness
Poor resource coordination	Resource coordination guidelines

Insufficient holistic approach	Holistic approach
Human Error	Human error reduction

Table 11. Themes translated to KM based model for DP

6.3 Factors to consider when developing a KM model

In Section 4.3, the factors to consider when developing a KM Model were presented and were used in the feature analysis comparing several KM frameworks and models. These factors are revisited in this section as seen in Table 12 in order to ensure that they are included in the KM Model for DP. The tick by the factor indicates that the factor has been taken in to consideration and will be incorporated in the model. At the validation stage, Table 12 will form the basis of comparison to summarise the findings of the GT research and as a final check to ensure a holistic KM based DP model is produced.

Factors to ensure is considered	Check
Current initiatives in the NHS are taken into consideration and new thinking is indicated	✓
Encourages discussion and sharing of information	✓
Suits the needs of the organisation	✓
Cope with change	✓
Ensures efficient time management	✓
Ensures knowledge gained is measured, stored and reused	✓
Organisational structure indicated and allocate responsibility to people accordingly	✓
Knowledge content, knowledge is managed in an effective way, allowing for the knowledge to be retrieved and understood by people who are most likely to need it.	✓

Table 12. Factors to ensure is captured in the KM based DP model

6.4 Theory derived from GT and definition of terms in the KM based DP Model

When planning discharge of a patient knowledge requirements are collected, stored in knowledge assets for knowledge actions such as use, reuse, internal and external sharing to take place, producing knowledge outcomes which result in a discharge plan and lessons learnt

6.4.1 Theory derived from GT

The discharge plan is shared with patients and continuously updated if need be. The lessons learnt is used to update future discharge plans that might need to be updated and created.

6.4.2 Definition of terms and components of the KM based DP Model

The KM based DP model has the following components, which are defined in these terms:

1. **Knowledge requirements** - A knowledge requirement is the information needed to trigger the commencement of the informed decision making process i.e. discharge plan;
2. **Knowledge assets** - Knowledge assets are tools and technologies that complements the informed decision making process;
3. **Knowledge actions** – The actions taken to produce knowledge;
4. **Knowledge outcomes** – It is the output of the knowledge requirements, the knowledge assets and the knowledge actions. The result of the processing of the requirements using the assets with specific actions, which feeds in to the discharge plan;
5. **Management and Environmental factors** – Factors which affect the overall discharge plan, but which when 1, 2, 3, 4 are coordinated, subsequently falls in to place as well. It is therefore important to be mindful of the factors and ensure their components are in place;
6. **Discharge plan** – The end product, which is produced from the informed decisions made and is personalised to the patient;
7. **Lessons from discharge plan** – The lessons learned through steps 1 to 7 are constantly updated to further improve future discharge plans.

(after Shah et al. 2007, Sharp et al., 2003)

6.5 The KM-based DP model

In the following sections, several sentences will be highlighted in bold with a number in brackets next to it. The number in the bracket signifies the step in the proposed model as seen in Section 6.5. The following sections highlight how the different steps are correlated and how they work together to produce a better discharge plan.

6.5.1 Knowledge outcomes

In order to come up with a better discharge plan, several **knowledge outcomes (4)** have been highlighted as important:

- Having personalised patient information;

- improved internal communication within departments in the NHS, so the right information is shared with the right people at the right time;
- it is important that information about patients are communicated to them appropriately so they are empowered with knowledge about themselves in order to smoothen the convalescence at home. Equipping them with information allows them to recover properly at home, making minimal mistakes and reduces the chances of emergency readmissions;
- it is also important that inter agency collaboration is improved, so that bookings are made well in advance and there is sharing of information between agencies. It’s always good for the agency taking in the patient to have up to date information about the patient (see Figure 32 for the KM-based model for DP).

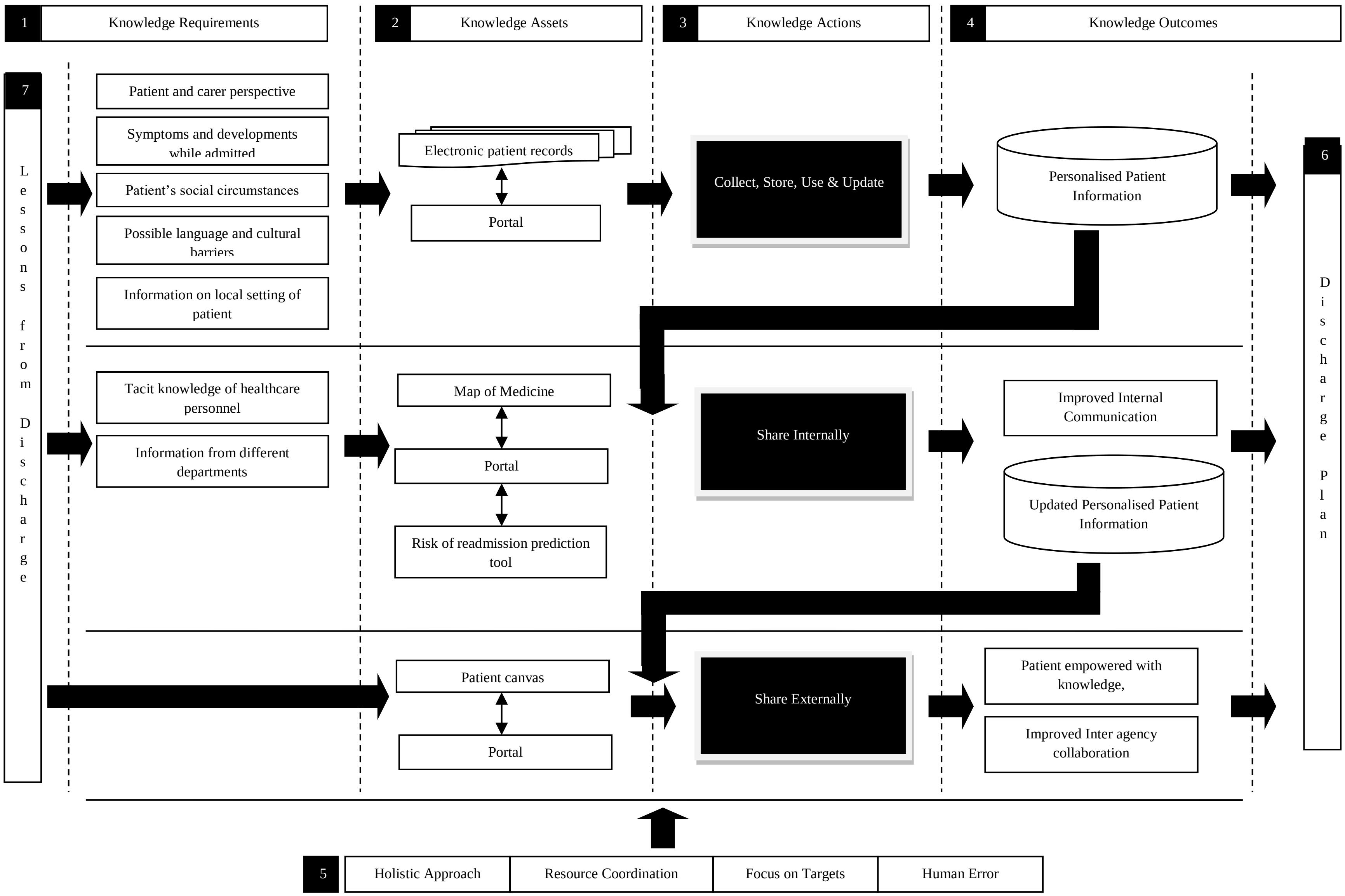


Figure 32. The KM-based Model for improved DP

6.5.2 The different layers of the model

The model is divided into three horizontal layers that are used from Figure 32 to illustrate the specific improvement areas in which the KM-base model would operate, derived from the literature (see Figures 13, 14 and 15) and from the GT analysis:

- The Personalised Patient Information Layer of the Model;
- The Improved Internal Communication layer of the Model;
- The Improved External Communication layer of the Model.

These layers are also influenced by management and environmental factors identified in the literature (see Figure 15).

6.5.2.1 Personalised Patient Information Layer

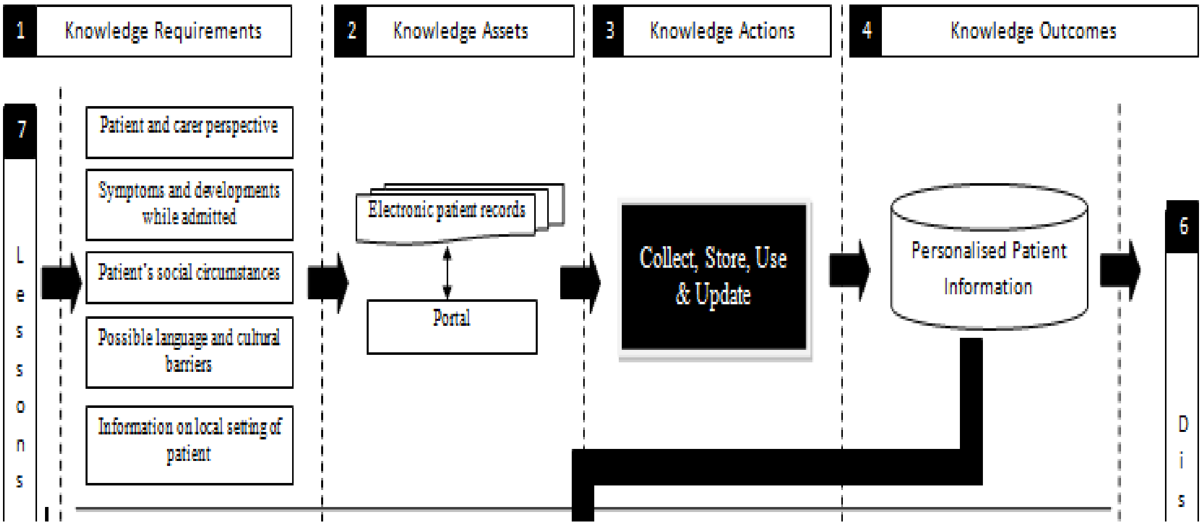


Figure 32a. Personalised Patient Information Layer

In order to achieve the first knowledge outcome, **personalised patient information** as seen in Figure 32a, the knowledge requirements are:

- Knowledge of the patient's and carer's perspectives about their readiness to be discharged from hospital;
- their confidence and ability to recover at home;
- a carers ability to take care of the patient at home;
- any symptoms at all the patient might have developed alongside the initial reason why the patient was admitted into hospital;
- the home condition of a patient such as having the facilities needed for a speedy and safe recovery;

- possible language and cultural barriers that might exist and organising a means to overcome these barriers.

Knowledge assets currently used in the NHS such as electronic patient records (EPR) contain knowledge requirements, and it should be ensured that the knowledge requirements about the patient that are stored in the EPR is included in the process of making the decision to discharge. In the event that this information is not stored currently in electronic patient records, the knowledge required can be accessed through notes by doctors, nurses and GPs through a clinical portal. A knowledge action is required on the knowledge assets, which moves to the next stage where the knowledge is collected, retrieved, used, stored and updated. The end product of the knowledge action is the knowledge outcome, i.e. personalised patient information which should be used for the **discharge planning process (6)**, which should commence upon admission and updated with patient and carer involvement. The knowledge outcome from the first level, (i.e. personalised patient information), is shared in the second horizontal layer of the model.

6.5.2.2 Improved internal communication layer

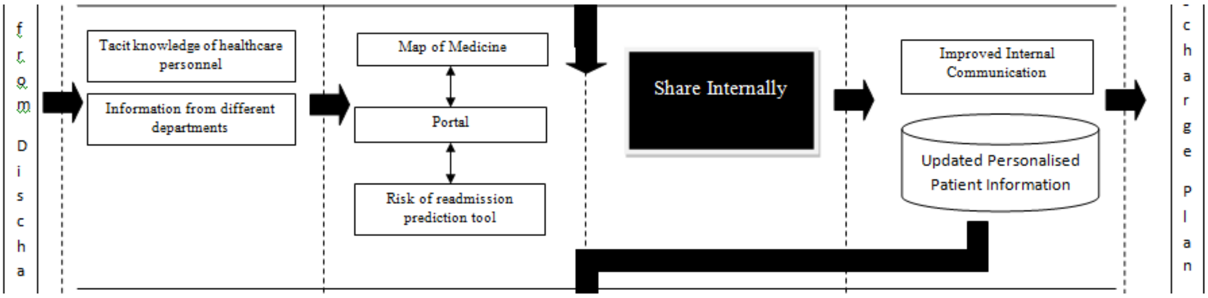


Figure 32b. Improved Internal Communication Layer

The second knowledge outcome as seen in Figure 32b consists of two components, namely, improved internal communication and updated personalised patient information.

In order to achieve these outcomes, the knowledge required is:

- Healthcare personnel knowledge. Healthcare personnel like doctors and nurses have information about how they treated a patient with a similar diagnosis previously, and they might have knowledge about the patient being treated from the conversations they have had over time with the patient. Capturing tacit knowledge of the healthcare personnel, (i.e. their ‘know how’) adds value to the overall decision to discharge making process, as it ensures that a personalised approach is taken;

- Information from different departments such as laboratory test results, x-ray and scan results, doctors' notes, notes from different departments etc.

Knowledge from healthcare personnel can be best captured in knowledge assets such as the Map of Medicine which provides a best practice and diagnostic pathway. The Map of Medicine '*supports the optimisation of care by providing access to comprehensive, evidence-based guidance, and clinical decision support at the point of care'* (NHS, 2012d). Therefore a localised "Map of Medicine" can help greatly, to provide information required by healthcare personnel at the point of care, at the same time prompting healthcare personnel to look for information relevant to decision making in electronic health records. Electronic health records can contain large amounts of information and knowing what information is needed at the point of care is important (Knott, 2012), hence the significance of a localised "Map of Medicine".

Information from different departments can be best captured using assets such as a prediction tool that calculates the risk of readmission and which provides information that a healthcare personnel might need such as the electronic patient records, information from different departments such as laboratory test results, x-ray and scan results, doctor's notes, notes from different departments etc. The portal helps with the sharing of information conveniently between departments, reducing the waiting time that currently occurs between departments (Syvertsen, 2005; Chris et al., 2003; Nemeth, 2007). The portal can be easily accessed by the healthcare personnel and assists in presenting the information from different departments as previously described. Personalised patient information, when linked to the portal, allows for this information being presented to healthcare personnel at the point of decision making, ensuring that personalised information about the patient is present, coupled with their existing tacit 'know how' to make informed decisions. Another knowledge asset which serves a useful includes a tool which predicts the risk of a patient being readmitted. This tool runs an algorithm, which predicts the likelihood of the patient being readmitted based on the personalised information about the patient such as the PARR risk prediction tool, which will be described in Section 7.3.1.3.

When knowledge assets are shared internally within different departments in the healthcare setting, a knowledge action is taken. This action ensures that healthcare personnel make more well-informed decisions. Having personalised patient information, coupled with the 'know how' of the healthcare personnel and the risk of a patient being readmitted allows for more informed decision making at the point of discharge planning. It allows decisions such as whether the patient should be transferred to a care home, whether the patient will require someone to attend to them regularly, etc, to be made at an earlier stage of DP.

6.5.2.3 Improved external communication layer

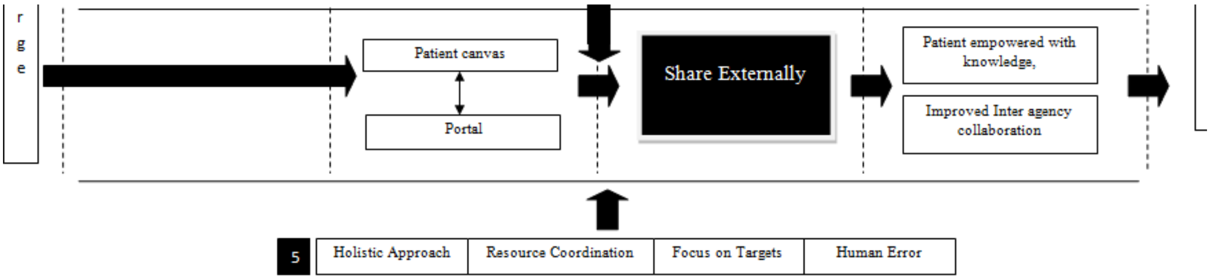


Figure 32c. Improved External Communication Layer

The knowledge outcome at this level feeds in to the **discharge plan (6)**, influencing the informed decision making process, and is perused in the next level as well. The knowledge outcome of the Improved External Communication layer as seen in Figure 34 is patient empowerment as the patients receive knowledge that is required to help them to recover at home to be aware of the consequences of their actions and also improve interagency collaboration. Improved interagency collaboration is key to DP, hence it being strategically located at the bottom right corner of the model (i.e. last in the knowledge sequence). The purpose of its location is to indicate that before a discharge plan is signed off, it is important that various external agencies that have to be contacted have been contacted, the necessary information that needs to be shared is shared in order to ensure a smooth discharge transition and prevent potential delayed discharges or lack of timely knowledge about a patient.

In order to achieve this outcome, the knowledge required is the collated knowledge from the previous two layers. This knowledge can be found in the portal, and a patient canvas, the **knowledge assets (2)**. The portal will provide patients with online access to their healthcare records, with an explanation of their diagnosis, symptoms, medication consumption, all explained in an easily understandable form (Spindel, 2009). It would also include nutritional and exercise recommendations, and links to recommended websites for further reading, videos, podcasts etc. If patients are uneasy with the use of a patient portal, a patient ‘canvas’, a short description provided to patients about their diagnosis, symptoms, medication explanation, and exercise and nutritional recommendations (Murray, 1989; Foss & Hofoss, 2011). This information should be shared externally, as the knowledge action that needs to be taken. This would result in patients being provided with the necessary information to recover at home.

Information about patients should be shared externally with external care agencies at the point of admission so as to ensure that care agencies have up-to-date information about a patient at a time when they are taking care of the patient to avoid any errors that could happen. Care agencies could be linked to the portal to have access to the patient information, information that is relevant to the care of the patient. The outcome of sharing information with patients and collaboration with care agencies is fed in to the **discharge plan (6)**, ensuring the discharge plan incorporates a holistic approach.

6.5.2.4 Management and Environmental factors (5)

Figure 32d. Management and Environmental factors

These factors are invariably related to DP. When the core factors in the model, such as personalised patient knowledge, shared information between departments of the hospital, between patients and carers are aligned, then the ‘management’ and ‘environmental’ factors will tend to align as a result:

- **Human error**

The use of the clinical portal to link personalised patient information and the knowledge of the healthcare personnel in the form of the map of medicine, and knowledge about the treatment, diagnosis and results of a patient will as a result ensure that patients are identified correctly, it will minimise a wrong diagnosis, lab test errors, medication errors and communication errors. It therefore will minimise human error.

- **Resource co-ordination**

Having the information that is needed when it is needed will help to coordinate resources better, staff will be assigned tasks according to their roles and responsibility, a bed management system will be in place, the discharge plan will be documented and can always be tracked, care resources and medical equipment if needed will be booked in advance using the personalised patient information.

- **Focus on targets**

Targets such as the number of patients discharged, minimising emergency readmissions can be met more easily if the processes as described above are aligned. It will be ensured that more patient-centric targets are in place and that cost and expenses will be better managed as better processes are in place.

- **Holistic approach**

A holistic approach will be ensured by using the "Map of Medicine", the clinical portal and electronic patient records, as the multiple pathology of each patient will be recorded, hidden sources of confusion can be identified, healthcare personnel will have more accountability as they will be assigned tasks according to their roles, and more informed decision-making will take place as personalised patient information is used, alongside capturing the "know-how" or tacit and implicit knowledge (i.e. tacit knowledge that is capable of being made explicit) of the healthcare personnel as previously described in Section 4.1.2.

Having all information needed in place, it is proposed that a better **discharge plan (6)** can be produced. The **lessons learned (7)** from the discharge plan will be fed back into the DP process in order to ensure a continuous improvement in the processes.

6.5.2.5 Discharge Plan (6)

All the three levels of the KM model feed back to the fifth part, the discharge plan. The discharge plan is the knowledge achievement. The discharge plan produced is personalised to the patient and is produced in a way to mitigate future complications in terms of emergency readmissions that might occur. It is also produced in a timely manner thus minimising delayed discharge. The feedback obtained from the discharge plan, which can be obtained by monitoring the statistics of emergency readmissions, delayed discharge, waiting lists, patient satisfaction, healthcare personnel satisfaction, noting lessons learned, and other such information to gauge the success of the measures taken, is used and fed back as in Step 6.

6.5.2.6 Lessons from Discharge Plan (7)

The lessons learned when tracked, monitored and documented can help in constant refining of all the steps. The breakdown of the steps helps easily pick out problematic areas, if one was to arise.

6.6 CATWOE of the Knowledge based Discharge Planning Model

The elements of CATWOE are customers, actors, transformation, *weltanshauung* or world view, owner and environment as seen in Figure 33. The mnemonic CATWOE was developed by Peter Checkland as a means of describing human activity and its situation in a Soft Systems Methodology (Checkland, 2000; Andersson & Wene, 2012). CATWOE provides a rigorous and comprehensive way to solve problems by looking at a problem from as many angles as possible, understanding all the actors involved in the system along with possible external factors that affect the problem (Checkland, 2000). A CATWOE analysis was done on the KM-based DP model in order to define the views, roles and relationships of the people (i.e. the actors) involved in the DP decision-making process.

The customers are those who are on the receiving end of the model, the people who benefit from the process. Therefore as seen in Figure 33, the customers are the patients, carers and healthcare personnel. The model was developed based on feedback obtained from these three customers amongst other factors that were taken into consideration. A patient's home condition is understood, the level of family care the patient has is understood when making a decision to discharge a patient. Patients benefit by being more knowledgeable about their condition when discharged. Patients are actively involved in the DP process, the knowledge they have is acquired at an early stage and used in the decision making process. When discharged, patients are aware what their responsibilities are, who they should seek for extra help, what to do in the event of an emergency and they have a better understanding of their circumstances. Similarly, carers are actively involved in the DP process. The carer's level of understanding and knowledge of the patient is taken into consideration in a timely manner and used when planning discharge. If a patient is unable to take care of themselves or to understand their symptoms and prognosis, a carer is aware of what is required of them, and they understand the consequences of their actions.

Healthcare personnel are the customers as the DP model will bridge the silos which currently exist, encouraging inter-departmental sharing of information in a timely manner. Similarly the DP model will ensure that the knowledge about a patient that is tacitly owned by healthcare personnel such as nurses and doctors is used when planning a patient's discharge. The DP model therefore ensures the healthcare personnel are aware of their role in the DP process and inject increased accountability of the personnel. It can be used to improve current processes through the learning and accumulation of shared experiences. The

KM based DP model aligns the steps needed to plan discharge, taking a systematic view, and ensures that all the stake holders have an involvement in the DP process.

Customers
- Patients
- Carers
- Healthcare personnel

Actors
- Healthcare personnel
- Systems developers

Transformation
- knowledge of patient and carers used in decision making process
- knowledge of healthcare personnel used in decision making process
- inter department knowledge shared efficiently
- improved interagency collaboration

Worldview
- Improved use of resources in the NHS
- More efficient admission of patients
- Cost effective management of patient admission
- Improved patient care

Owner
- NHS / healthcare organisation

Environmental constraints
- resource limitations
- financial constraints
- targets
- regulations

Figure 33. CATWOE of Knowledge Management based DP Model

It also ensures that the knowledge owned by the stakeholders is fed back into the decision-making process. The model will be used by healthcare personnel to fall back on and check that every step is fulfilled. It can therefore be used to check that processes are in order and that the system follows the proper sequence of steps. The model can also be used when designing a healthcare system, as a foundation for the building of an IT based system. It provides a systemic view of discharge planning, by bringing together factors which affect the current system now, arranging the system in order and provides solutions.

6.6.1. Actor classes

The **'actors'** are those who will carry out the main activities within the system. Therefore in the case of the DP model the actors are the healthcare personnel, as they are the point of contact between patients and carers and the decision makers. The healthcare personnel will be responsible for acquiring and sharing information with patients and carers and they are also responsible for diagnosing the patient’s ailments and deciding on the further treatment and care if so required. The healthcare personnel are also responsible for completing any paperwork or updating information about a patient and liaising with external care agencies where necessary. Therefore an improved DP model will impact them positively as it will present healthcare personnel with the information required at the point of decision-making in a timely and specific manner. Systems developers can also be categorised as actors, as they can use the DP model to integrate existing systems and streamline them in a way that enables the information that is required by healthcare personnel to be presented to them in a timely manner, thus helping healthcare personnel to gain knowledge from the information and to make informed decisions.

6.6.2 Transformation processes

‘Transformations’ convert the system’s inputs into outputs through a process. The process in the case of the DP model is, the series of knowledge requirements being converted into knowledge outcomes by the use of knowledge assets in a series of knowledge actions. The knowledge outcomes feeds in to the final discharge plan and feeds in to the next layer of the KM based DP model, ensuring holistic DP.

6.6.3 Worldview

‘*Weltanschauung*’ or **worldview** analyses the ‘big picture’ or the wider impact of the model and places it into context, taking account of the epistemology of the actors. The model when perused accordingly and when the processes are aligned accordingly will positively impact upon the admission, discharge and transfer processes in the NHS as seen in Figure 6. The wider impact of the KM-based DP model is an efficient management of the resources and finances of the NHS, with increased patient and carer empowerment.

6.6.4 Owner classes

The **‘owners’** are the NHS or any healthcare organisation that the model can be used in. The owners can help the processes depicted in the KM based DP model to flow smoothly when implemented, as the processes are streamlined with existing technologies and knowledge that the NHS already has.

6.6.5 The environment

‘Environment’ is the constraints that exist, or the real world limitations of the model. In the case of the KM based DP model, the constraints have been classed as the environmental and management factors which impact upon DP in practice. Streamlining the processes as shown in the DP model in the first three layers ensures the DP process is improved and consequently that the environmental and management factors will be synchronised and synthesised (i.e. will be better co-ordinated in terms of time and will work together more effectively).

6.7 Conclusion

Chapter 6 describes the synthesis of the themes from the GT into a theory of KM in DP that forms the basis of a KM Model for DP, by uniting KM and DP into an effective and workable knowledge-based framework for making decisions about patient discharge. The various layers of the model and their function in the model are explained in detail. The DP problem is further defined by a CATWOE analysis that further explains the classes, processes and actors in the model. This is a precursor to the validation of the completed model in Chapter 7.

Chapter 7. Validation of the KM based DP Model

7. Introduction

In the previous chapter the KM based DP model was introduced, and its components and processes described. The model needs to be validated, in order to determine its feasibility of practice in the 'real world'. This chapter reviews the validation process, the results of the validation and the changes made from the feedback obtained from the feedback. Validation demonstrates the degree to which a model is an accurate representation of the actual system and reproduces a systems behaviour with enough fidelity to satisfy analysis objectives (Biggam, 2008; Pawlowski & Bick, 2012). The aim of the validation chapter is to determine if the KM based DP model provides a reliable and valid means of DP, and if the model is likely to be adopted in practice. The initial objectives of the study influenced the development of the KM based DP model. The KM based DP model was built from the analysis of the problem area related to DP using the GT research method, and the model therefore represents different parts of the DP process at different levels of abstraction, thus requiring different levels of validity (Pawlowski & Bick, 2012). A quality management framework for data models used to evaluate and improve the quality of data models was employed to validate the KM based DP model as it was not possible to validate the model in practice through a simulation due to the ethical implications (Moody & Shanks, 2003).

7.1 Aspects requiring attention during validation of a KM-based DP model

The quality management framework covers aspects that should be considered during validation and their relationship to one another, hence will be used by the researcher to ensure the validation of the KM based DP model is systematically carried out. The quality management framework includes four factors that relate to quality and is made up of five major constructs (Moody & Shanks, 2003).

7.1.1 Quality factors

The quality factors define the characteristics of a data model that determine its overall quality. The KM based DP model intends to improve the current DP process by bridging silos that currently exist within the NHS, actively involving patients and their carers and using the knowledge that they have about themselves and their circumstances in order to construct a discharge plan, similarly using the knowledge that healthcare personnel have when planning discharge. The DP model also aims to improve inter-agency collaboration, thus ensuring that when a patient is ready to be discharged their-post discharge care services are equipped to take care of the patient in a timely manner.

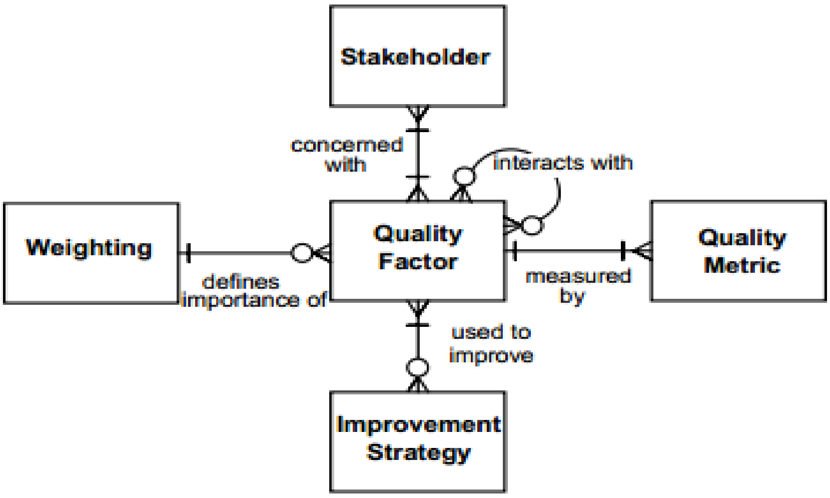


Figure 34. Data model quality management framework

Source: (Moody & Shanks, 2003)

The DP model ensures that knowledge is managed effectively and the right knowledge is acquired, shared and used by the right people at the time needed. The Key Success Factors (KSFs) for developing a KM model were previously investigated in Sections 6.3 and 6.8 (see Figure 34). The KSFs for developing a KM based DP model are drawn from Moody & Shank's Data Model Quality Factors (Moody et al., 2002; Moody & Shanks, 2003) and customised for the purpose of this research (see Figure 35). The KSFs will be used during the validation, to check with the validators that the KM based DP model fulfils the factors. These factors are:

- Completeness, does the KM based DP model ask the right questions, and does it contain all user requirements. The extent to which the model improves the quality of DP;
- efficiency, the extent to which the KM based DP model reduces the effort required to perform DP;
- simplicity highlights the knowledge items, information and factors to be considered in a simple form in the model;
- flexibility, the ability of the model to cope with change with ease;

- integration, the ability of the model to integrate with existing data of the organisation such as electronic patient records, clinical notes, and other such records;
- understandability, the ease with which stakeholders understand the model and the extent to which the users believe using the model will be free of effort;
- perceived usefulness, the extent the user of the KM based DP model believes the model will be useful;
- intention to use, the extent to which a person intends to use the KM based DP model is determined;
- ‘implementability’ (i.e. the ability of the model to be implemented within the time, budget and technology constraints of the organisation) is the extent to which the KM based DP model will actually be used.

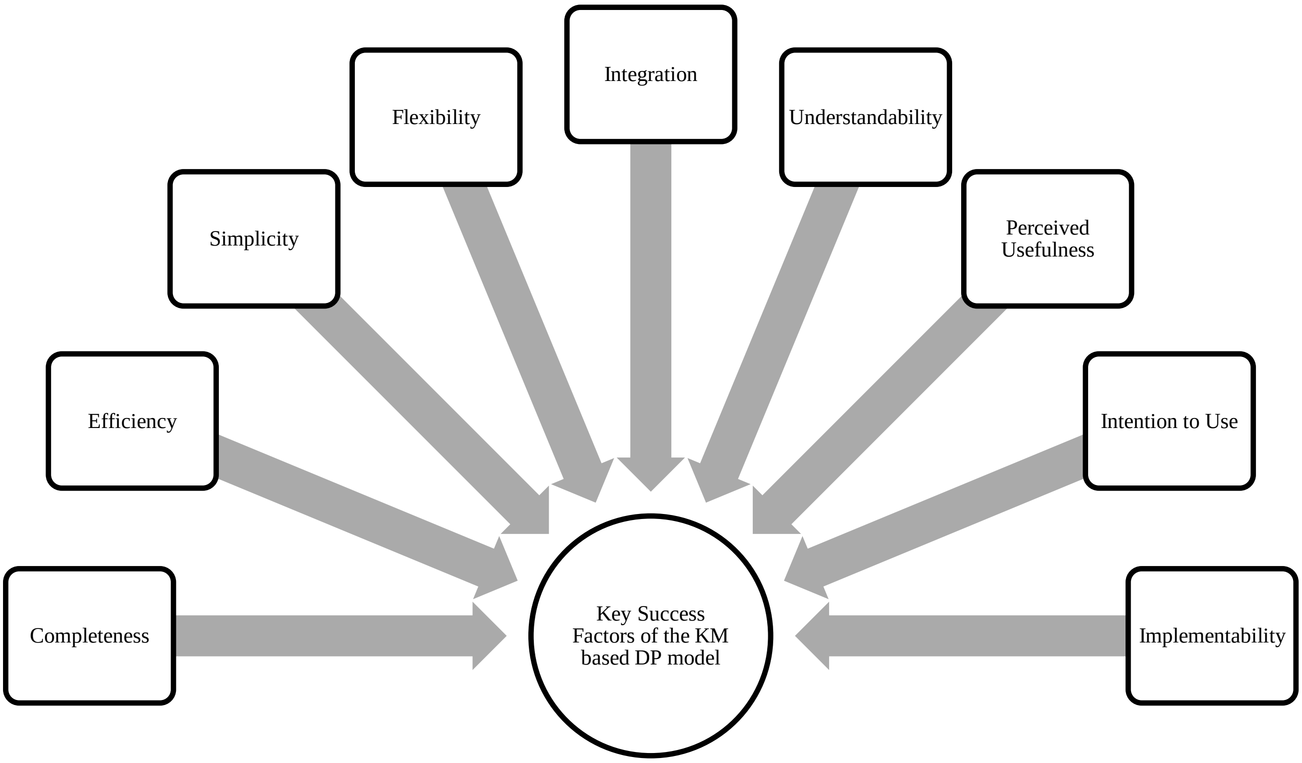


Figure 35. Key Success Factors of the KM based DP Model

Source: (Moody & Shanks, 2003)

7.1.2 Stakeholders

The stakeholders are people actively involved in the DP process, and are discussed in Section 3.6. The stakeholders of the KM model, are the actors who will be using the KM based DP model, and as seen in Figure 35. These stakeholders are the healthcare personnel, the doctors and nurses and the systems developers. Due to the time limitations, the need for accuracy and the speed with which healthcare personnel are required to make decisions, their expectation of a KM based DP model would be one that ensures the information needed at the point of decision making is prompted to the decision makers in a timely manner, and that they process employs a holistic approach. The KM based DP model itself can be further broken down to simplify the processes in the form of an integrated system that merges the existing technologies such as the EPRs, a localised "Map of Medicine" and other records such as the PACS (picture archiving and communication systems) and laboratory test result systems, etc. into one central portal that presents the information that is needed in a timely manner (Woodcock, 2011; Syvertsen, 2005). Therefore the DP model can be helpful to systems developers, in assisting them to obtain a holistic view of the DP process and to ensure that the various sections are integrated and incorporated into their systems design.

The stakeholders and guidelines for using the KM based DP model to make a decision as discussed in Section 7.1.2 are as follows:

- Doctors, who diagnose and treat a patient. When using the model, doctors can be prompted to ask questions from both the patients and carers to ensure their symptoms, perspectives, possible language barriers, social circumstances and local settings are taken into consideration. Doctors can also use technological aids such as portals to gain historical information about a patient, be provided with diagnostic and discharge date recommendations, which can then be communicated to the patient and carer in a way that is easily understood by the patient. The connectedness of the doctors to the various technological aids ensures that should a doctor be away, the next person in charge has the information needed to make the right decision.;
- nurses, who assist doctors in diagnosing and treating a patient, could use the model similarly as described above. They can also ensure that when a patient is triggered to be discharged, to check systems such as the clinical portal to ensure departments such as the pharmacy have been auto-alerted and are preparing the medication needed for the patient's convalescence at home. Nurses can also coordinate with doctors and

divide the tasks of discharging patients and providing patients and carers with information they need, by efficiently sharing what has already been done amongst themselves.;

- project leads who manage and oversee process mapping for discharge planning and liaise with systems developers and healthcare personnel. Project leads and their teams through the lessons learned from discharge can set up feedback sessions in order to better understand challenges that were faced, in order to continuously improve and develop the technological systems such as the portals.
- a systems developer who was recommended by the project lead. The systems developer who closely works with the feedback provided acquired by the project lead can also come up with new and innovative ways to further engage patients, carers and healthcare personnel through remote monitoring, social media discussions and data collected through wearable devices. (Laff, 2014). The system developer can identify data requirements for the systems, identify the silos of data sources, and further refine on the information flow of the systems in order to build a patient discharge planning system that is more integrated. A system that ensures the use of tacit and explicit knowledge of all the key stake holders in the discharge planning process, i.e. patients, carers, doctors and nurses.

The stakeholders will be the participants in the validation process. They will be presented with the model in face-to-face semi-structured interviews and given a detailed description of the working of the model. The doctors and nurses will be asked if they were to use the DP model in a real world setting, would they be able to discharge patients based on the key success factors as described in Figure 37. Doctors and nurses, along with systems developers will also be asked if the categories in the DP model are necessary and if they are inter-dependent on another or independent of one another, and if there were any areas they perceived was missing, or could be removed. The results of their responses will be analysed using quality metrics are described in Section 7.1.3. The semi-structured interview question set is presented in Appendix B.

The KM based DP model when compared to the existing DP method, ensures accountability amongst healthcare personnel, it ensures the information needed is acquired and presented to the people needing the information at the time needed. When asked, the participants of the validation exercise, agreed that with the KM based DP model, DP would operate more smoothly compared to the current way in which DP is carried out. This is because the KM based DP model streamlines the processes and brings the key areas requiring coordination to immediate attention.

7.1.3 Quality metrics

The quality metrics determine how the key success factors as illustrated in Figure 37 will be measured, and how stakeholder satisfaction will be assessed. A reliability analysis was used to evaluate the KSFs and to identify how consistently the participants in the validation perceived the usefulness of the model, the 'implementability' of the model, and how they were able to use the model effectively.

7.1.4 Weightings

The weightings define the importance of the different categories of DP as displayed in the model, and examine the tradeoffs that exist. In the case of the proposed model the Pareto analysis as (described in Section 5.4) highlighted the weightings of the different categories and their importance.

7.1.5 Improvement strategies

Strategies for further improvement of the KM based DP model based on the outcome of the validation will be examined in Section 7.2 and further research improvement will be discussed in Section 8.7.

7.2 Summary of quality metrics

The model was presented to the participants of the validation, their responses was collated and analysed. The participants were very enthusiastic and were very receptive toward the model. It was obvious from the responses that the participants were keen in taking part in the validation exercise. A detailed description of their responses can be found in Appendix B. A summary of responses from the semi-structured interview for further improvement of the KM based DP model however is tabulated in Table 13.

Summary of Responses
Emphasise data analysis at each level of model. Indicate that knowledge requirements are collected and analysed.
Indicate the results of analysis being fed in to discharge plan and to the next level

Show the active involvement of a multidisciplinary team, and a check in all levels to encourage the analysis and review by multidisciplinary team to ensure the right knowledge is being used at the right time to make informed decisions
Show that discharge planning starts preadmission or upon admission
Emphasise the collaboration with the social care i.e. the interagency collaboration
Integrate information about a patient and their multiple conditions and then not just report actions but also prioritise and record future plans/actions. Therefore emphasise on the importance of lessons learnt
1st layer to 2nd layer arrow needs to go further back, perhaps to 2nd layers knowledge requirements

Table 13. Summary of responses from the validation exercise

Based on the feedback obtained, it became evident that emphasising the involvement of the multidisciplinary team was important, and reinforcing the importance of the interagency collaboration and the timeliness with which the communication and contact should commence. The feedback to emphasise data analysis at each level, and how the results of the analysis is feedback to the discharge plan and to the next level in the model too was take on board and used to further build and improve on the model. The reliability of the results were analysed using the Cronbach's Alpha Test to measure the internal consistency of the responses obtained (Biggam, 2008; Saunders et al., 2009).

7.2.1 Cronbach's Alpha Reliability Test

The responses obtained from the participants of the validation were rated on a Likert scale of 1-6 (6=Excellent; 1=Poor). The values were then computed according to the different KSFs they represent and a reliability test was conducted. The level of agreement between the different participants in the validation was therefore evaluated using the Cronbach's Alpha Test (Moody et al., 2002; Saunders et al., 2009). As shown in Table 14, the levels of reliability was seen to be 0.854 for the KSF, indicating 15% variation due to error variance (Tavakol & Dennick, 2011; Saunders et al., 2009; Biggam, 2008; Moody et al., 2002).

Key Success Factors Cronbach's Alpha	0.854166667

Table 14. Cronbach's Alpha Reliability Results

7.2.2 Ratings of quality factors

Quality factors that determined the KSFs of the KM based DP model were previously described in Section 7.1.1. Various questions were posed to the participants of the validation according to the KSFs and their responses were obtained. The results were computed based on the results obtained from the Likert scale as previously described in Section 7.2.1 Figure 36 summarises the results of the quality factors in a radar chart.

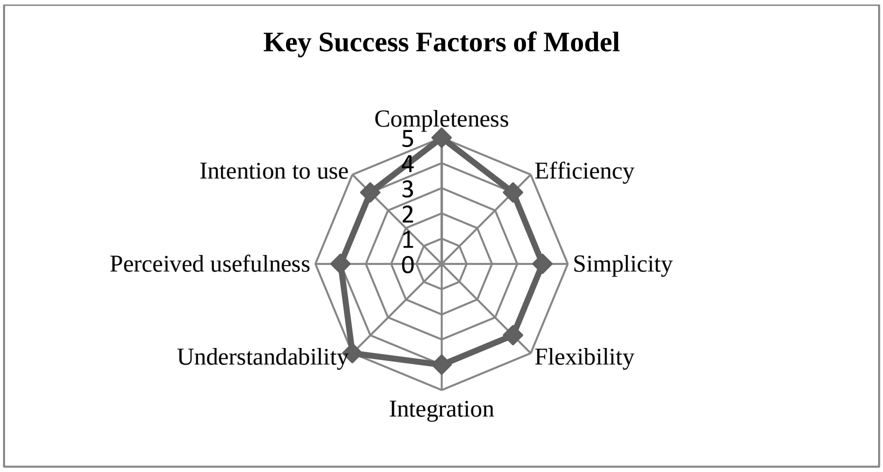


Figure 36. Quality Factors determining Key Success Factors of KM-based DP Model

The chart shows that the model was sound in terms of completeness and the ability to understand it (i.e. its perceived ease of use). The model, however, required improvement in terms of efficiency, simplicity, flexibility, integration and perceived usefulness. The intention to use the model too can be improved with a stronger explanation of the benefits the model presents for DP in the long, and the savings that can be made in terms of costs and resources. The feedback from the results of the analysis was used to reconstruct the KM based DP model. The improvements and suggestions were inserted into the model and are presented in Section 7.3 (see Figure 37).

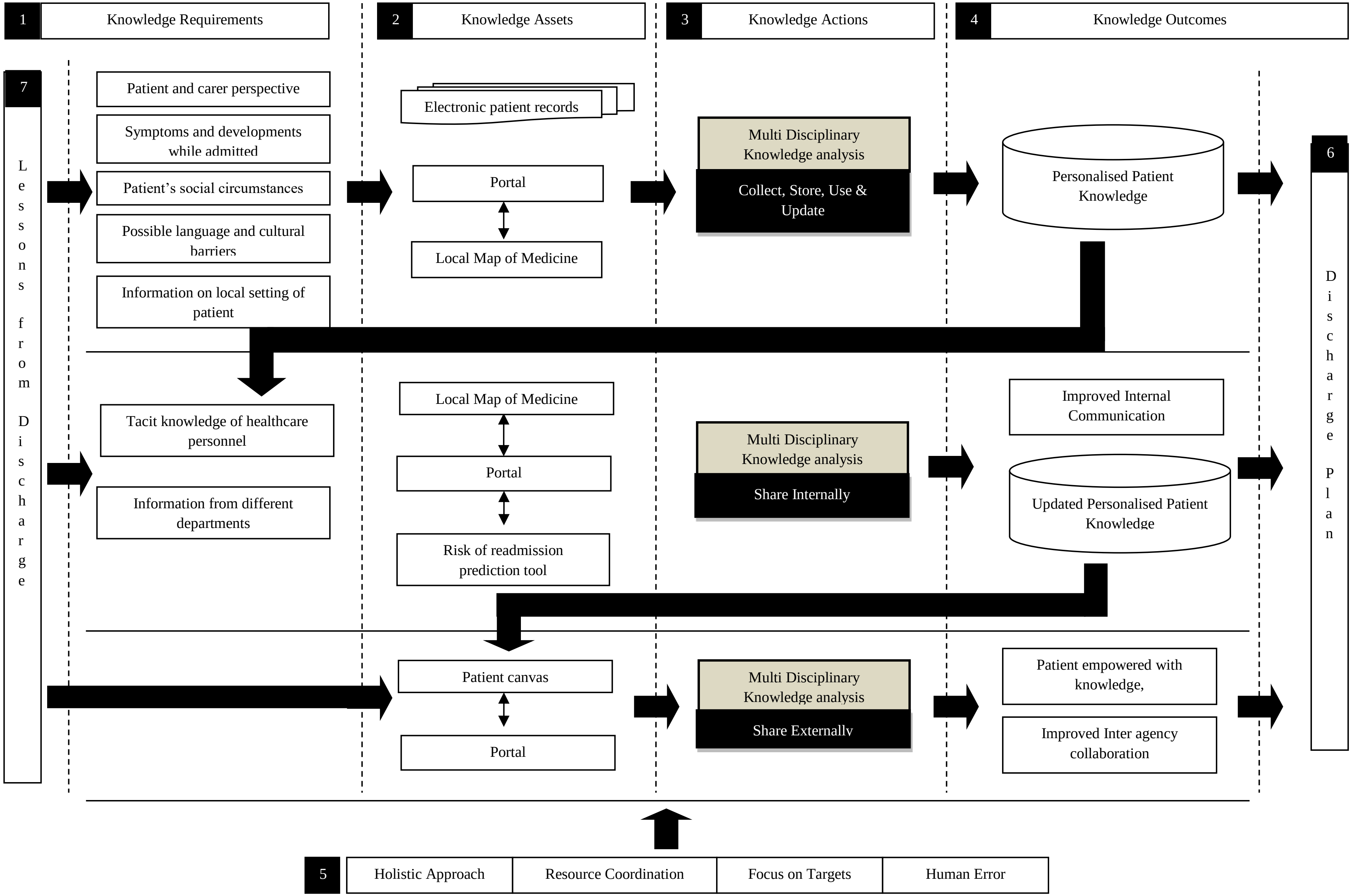
7.3 Outcomes of KM-based DP model: benefits of the model

One of the unique benefits of Grounded Theory research is that the results are grounded in the research and the findings. Similarly, with the validation the results that were obtained were used to further build on the KM based DP model as seen in Figure 39. At each level of the knowledge actions, the multi-disciplinary knowledge analysis was added, indicating that at each stage the information that is gathered from the different sources using the different knowledge assets and involving patients and carers from the very beginning of the DP process means that an analysis of the knowledge is carried out by the multidisciplinary team and constantly reviewed. The outcome of the analysis generates the knowledge outcomes that contribute to the discharge plan and the outcome of the analysis also proceeds to add value to the next stage of the first and second level. The Map of Medicine (Map of Medicine, 2013) was changed to a local Map of Medicine, emphasising the importance of using localised pathways in order to gain a better understanding of the local setting. The inter-agency collaboration's position remained, as it was decided that it has been strategically positioned in order to remind the user of the model that before a discharge plan is completed it is always important to ensure that interagency collaboration has been established. It has to be emphasised that DP must commence upon admission or even before admission. The involvement of the patient and carer means asking patients and carers questions according to those generalised themes as is seen in the model. Current discharge checklists can be used to ensure that this information is used for informed decision making.

7.3.1 Current initiatives in NHS taken into consideration and new thinking indicated

When using the systems theory to view a problem, one needs to be mindful that too much change can sometimes deter the actors of the system from making the change (Ashmos & Huber, 1987; Checkland, 2000). Therefore a major part of this research was to understand the current initiatives of DP and the tools and technologies that currently exist and that are currently being used. When proposing the use of knowledge assets, it was ensured that the assets were those that currently exist, as they themselves are rich in knowledge and are underused. The aim of the research was therefore to make the best of the existing assets and extract the information needed to make knowledge based decision.

Figure 37. Improved Knowledge based Discharge Planning Model



7.3.1.1 Portals

The Knowledge assets that have been recommended include portals, which have been developed and actively used in NHS trusts such as the Christie Tust, NHS Scotland, NHS Fife, amongst other NHS Trusts to enhance information sharing. The feedback from the trusts have been generally positive and talks are underway in some trusts for an integration of the portal with patient records in order to allow patients access to their records and information (Syvertsen, 2005; The Christie NHS Foundation Trust, 2012). The current portals are used by healthcare personnel to share information such as clinical notes, PACS, test results, physicians notes and GP notes (The Christie NHS Foundation Trust, 2012). Linking the local ‘Map of Medicine’ which provides localised pathways and the electronic patient records to a portal will help provide patients and healthcare personnel with information relevant to them at the time needed, helping to empower patients with knowledge about themselves and to empower healthcare personnel to confidently make informed decisions thus reducing possible human errors (one of the environmental and management factors highlighted in the model).

7.3.1.2 Map of Medicine

The Map of Medicine helps standardise care by generating evidence based pathways that have been established as a means of best practice (NHS, 2012d). They guide both the healthcare personnel and patients with different user views and customised to suit the understanding of the different user. The pathway helps to enhance the accuracy of decision-making and to ensure that the information is used to make informed decisions.

7.3.1.3 Risk prediction tool

The risk prediction case finding tool is also known as PARR – Patients at Risk of Rehospitalisation. The tool systematically identifies patients who are at risk of readmission by accessing statistical information stored in the Hospital Episode statistics and has pre-set criteria or also known as risk factors which it runs the analysis along side in order to determine the risk of a patient being readmitted (Billings et al., 2012). The reason the PARR was suggested was so it could be incorporated to the portal and provide alerts indicating to the healthcare personnel if a patient is at risk of readmission at an early stage in the admission process, while planning for discharge. This will therefore trigger a set of actions for healthcare personnel to take (as seen in the model) such as undertaking inter-agency collaboration, acquiring information from patients and carers and checking previous records of patient history in order to make an informed decision that will prevent a ‘revolving door’ situation in DP (Sg2 Healthcare Intelligence, 2011).

7.3.1.4 Patient canvas

The patient canvas was proposed as a means of providing patients who are not too familiar with the use of computers and the internet with a simplified description of their prognosis, symptoms, medication description along with nutritional and exercise recommendations and links to further reading and help line numbers. During the patient participation group exercise the hesitance of patients to try using the computer and the Internet emerged, similarly during the primary research when talking to older patients who also complained about the thick booklets of generalised information with which they are provided and which they do not read. Therefore the patient canvas is a suggestion intended to help patients who are hesitant to use computers by providing them with the information they need in a concise format and help to reduce their resistance to using computers by providing encouragement through suggested links which can also possibly build curiosity in patients and therefore increase their knowledge and self-dependence.

7.3.2 Encourage discussion and sharing of information

The portal has been divided into an internal communication layer and an external communication layer, as in the early stages of the GT, the themes that emerged up to the point of theoretical saturation indicated that two types of communication were key during DP. Internal communication, where communication takes place within the hospital and amongst healthcare personnel and different departments, and external communication, that takes place with patients, carers and external care agencies. All these forms of communication are key to the DP process and their importance along with the multidisciplinary team communication and analysis has been highlighted and strategically placed in the KM based DP model. The model highlights the flow of information and emphasises the need for the lessons learned to build on existing knowledge and to constantly generate new knowledge, thus fulfilling the factor of sharing information.

7.3.3 Suiting the needs of the organisation

The KM based DP model has been built using a GT research which is essentially grounded in the primary research and findings of the data analysis. Therefore the components in the model are themes that emerged from the findings, from the key stakeholders who are affected and who deal with the DP process. The end product of the model is a discharge plan, thus the model suits the need of the organisation as it sets out to help improve DP.

7.3.4 Coping with change

Ensuring the KM based DP model is able to cope with change is important, due to the nature of discharge of patients. The hospital environment is a very dynamic environment with changes occurring constantly. Therefore in order to manage this change and in order to ensure that risks such as human error are mitigated, it is ensured that the information needed by the decision makers is presented to them in a timely manner and in a form that suits the fast-paced nature of their jobs. It is also ensured that the healthcare personnel are aware of their roles by encouraging inter department communication and multidisciplinary analysis at every stage of the DP process. When the participants in the validation were asked if they believed the proposed model was capable of coping with change the median response was 4 indicating that it was good with room for changes, such as incorporation of the multidisciplinary team involvement which is included in the model as in Figure 39.

7.3.5 Ensuring efficient time management

The separation of the steps into knowledge requirements, knowledge assets, knowledge actions and knowledge outcomes ensures that the different stages are separated and take place in a predetermined sequence, thus ensuring decisions are made in a timely manner, and communication with the different stakeholders such as patients, carers, healthcare personnel and external care agencies is triggered at a timely manner.

7.3.6 Ensuring knowledge gained is measured, stored and reused

In order to fulfil this factor, the knowledge action was incorporated. This is to highlight the importance to using, storing, sharing and reusing knowledge at the time needed. The lesson-learnt too were incorporated in the model to ensure that the new knowledge is fed back for knowledge harvesting (Hansen et al., 1999).

7.3.7 Organisational structure and job role accountability

The encouragement of sharing of information within departments and the multidisciplinary analysis ensures that the people who are accountable for the decision-making process receive triggers to provide their input at the time needed.

7.3.8 Effective management of knowledge

This factor has been fulfilled with the knowledge outcomes and knowledge assets that propose to share knowledge to the stakeholders in a timely manner and in a form easily understood. The factor is also supported by the improved external communication where healthcare personnel are encouraged to ensure time is allowed for sharing information and acquiring information from patients and carers in a form they understand and feel comfortable with. The different needs of a patient and carer such as possible language and cultural barriers or even disabilities are considered and information can be provided.

7.4 Conclusion

This chapter examines the validation of the KM based DP model based on established criteria and factors in the form of KSFs (Moody & Shanks, 2003; Moody et al., 2002). The outcome of the validation showed positive results which were then used to feedback in to the existing model and to build on it further incorporating the suggestions from the participants of the validation process. The summary of the research findings is in Table 15.

Task Performance	**Result**
Is the model reliable?	Yes, with reliability results of 0.854.
Adoption in Practice	
Did the participants find the proposed model easy to use?	Yes
Did the participants find the model useful?	Yes
Are the participants likely to use the model in practice?	Yes

Table 15. Summary of Findings

Overall, the model was perceived to be useful; it was complete, understandable, reliable, flexible and implementable amongst the other key success factors. This, therefore suggests that the proposed model provides a basis for improving DP in the NHS by focusing on the key factors which currently are lacking focus on such as internal communication, external communication, personalised patient knowledge, active involvement of patients and carers and interagency collaboration. The next Chapter provides a conclusion along with a critical evaluation of the research process.

Chapter 8. Review and Evaluation

8.0 Chapter overview

The previous Chapter, evaluated the results of the validation by the stakeholders who will be using the KM based DP model. This chapter critically evaluates the research process and outcomes. It proceeds to then propose directions for future work.

8.1 Research overview

The primary research aim was to identify the problems resulting from inadequate DP and the people affected by inadequate DP. Planning discharge is a subset of a bigger hospital system, where several interrelated factors and people play a significant role. Hence the research was looked at from a systemic point of view, or as a whole, and the research method that was most appropriate for the aim of the research, the time scope of the research and the ethical implications of the research was Grounded Theory. The examination of the secondary research indicated that inadequate DP was indeed a problem persisting in the NHS, and to further support the literature, the researcher grounded the research in the NHS setting. The themes that emerged from the primary research indicated the problems that arose by inadequate DP such as patient's ill equipped to recover at home, poor sharing of information with external care agencies, a general lack of accountability amongst healthcare personnel and other such problems that were analysed in the form of a root cause analysis.

The themes were clustered into common categories, and were analysed until theoretical saturation was reached. These were then analysed using a Pareto Analysis to indicate areas which required immediate attention, in order to mitigate the overall problem of inadequate DP. The problems arising from inadequate DP were identified to be a cause of a lack of sharing knowledge in a timely manner to the people requiring the knowledge, hence displaying a lack of appropriate Knowledge Management. The results of the primary research, coupled with the findings of the secondary research provided a foundation for the development of a KM based DP model, which then led to the secondary aim of the research, which was to validate the model. As the people affected by inadequate DP, or the stakeholders were identified to be patients, carers, doctors, nurses and administrative staff, the findings upon which the model was developed was based on the feedback from the respective people.

The validation was carried out on the actors i.e. the people who will actually use the model to make the decision, while ensuring the involvement of the stakeholders. The actors were identified as the doctors, nurses; administrative staff who also dealt with systems developers who designed and developed IT based systems based systems for managing patient admission, discharge and transfer. The development of the KM-based DP model identified several areas for future research as is discussed in Section 7.4.

8.2 Research contribution

The principal research contribution of the thesis is the Knowledge Management (KM) based Discharge Planning (DP) Model. The KM based DP model was informed by a theory that emerged from the Grounded Theory research, which also represents a significant contribution. The method used to carry out the research also presents itself as a contribution to the research. The combined use of innovative methods such as Grounded Theory, Systems Theory, Root Cause Analysis, Pareto Analysis and a CATWOE in order to crystalise the problem areas and identify possible holistic solutions to the problem area, presents itself as a research contribution.

The KM based DM model provides an innovative solution to the problem of discharge planning in the NHS. The model represents a new approach to viewing discharge planning, without changing too much of the current system. The model represents a means of bridging current silos and using existing technologies in the NHS in an improved manner. The model aligns the people, processes and technologies in a healthcare system in relation to discharge planning, highlighting the knowledge requirements, assets, actions and outcomes, thus ensuring accountability of the people dealing with discharge on a regular basis, and allowing the information required for the informed decision making to be presented to them in an easily understandable and efficient form. The KM based DP model allows healthcare personnel in the NHS to use the model to better understand the various components that need to be looked into when planning discharge. The DP model also highlights the importance of patient and carer involvement.

The DP model can be used by discharge planners and member of the multidisciplinary team to further build on the model and generate further material based on the model, in order to make the DP process easier for healthcare personnel dealing with discharge. The DP can also be used by project planners and systems developers to integrate existing systems, such as The Map of Medicine, Risk of Readmission Tools, Electronic Patient Records and other such existing technologies into a central portal that helps present the knowledge needed in a concise form, in a timely manner to the people who need and have the knowledge, helping them form informed decisions. It also allows for a generation and input of lessons learnt, thus constantly building on existing knowledge. The intent of the model is to ensure that connectivity of the different teams responsible for the proper admission and discharge of a patient are connected ensuring standardised care across all NHS Trusts, as opposed to the current varied level of care across trusts. The KM Model allows for the use of devices to measure data about patients such as their blood pressure, blood sugar levels etc through the Internet of Things, allowing for remote monitoring of patients, and ensures that the data collected is stored and used in the decision making process when the patient is admitted (Kamalanathan et al., 2013) The KM model allows flexibility, allowing for big data analysis to be carried out through the risk prediction models, thus predicting the risk of readmission of a patient. The KM based DP model acts as a base, on which existing tools, technologies and processes can be built on. The model acts as a guide within which to plan a system pertaining to DP.

The results of the primary research, the secondary research, along with existing KM frameworks and models such as those in Figure 14 and 15, underpin the KM based DP model. The secondary research provided an insight and direction into the problem areas. The secondary research informed the researcher, helping postulate the problem to be inadequate DP. It also provided the researcher with a better understanding of the consequences of inadequate DP and the reasons causing inadequate DP. Secondary research of existing KM models provided a better understanding of KM, the components of KM and how to incorporate KM for DP. It also allowed the researcher to better understand the problem areas in DP and how to align the lack of processes with DP and silos in the NHS, and formulate a solution to improve DP. The primary research allowed the researcher to confirm the reports in the secondary research.

The opportunity to immerse the research in real practice i.e. in the NHS allowed the researcher to obtain firsthand knowledge about the problems causing inadequate DP, the consequences of inadequate DP, and allowed the researcher to better understand the various components that are connected to planning the discharge of a patient. The primary research coupled with the secondary research allowed for themes and categories to emerge in the

Grounded Theory, which helped derive a theory on which the KM based DP model was based on. Table , presents the research contribution in tabular form.

8.3 Evaluation of Research Aims and Objectives

The aim of the research was to investigate the problems caused by inadequate DP and the role of KM in reducing the problems. Developing and validating a KM based DP model was the primary aim of the research. As the research progress, the complexity of the DP process became evident. The importance of the level of patient and carer involvement became increasingly evident along with the impact financially and in terms of resources on the NHS and patient satisfaction. The objective of the research was to conduct secondary research into DP, KM and to carry out primary research in the NHS to gain a better understanding of DP in a real world setting, and understand KM and its role in healthcare, specifically to DP.

Element	**Research Contribution**
KM based DP model	The model presents itself as a contribution to the academic world and to practice. It acts as a contribution to academia, as it provides an understanding of KM, KM in Healthcare, and KM with regards to DP. It provides an understanding to the use of KM frameworks and models to align people, processes and technologies in an organisation. The KM based DP model contributes to practice as it provides a foundation of DP, linking knowledge and brings together the core factors for DP. It allows for healthcare personnel and project planners to further build on and add to my model and customise it to their local setting.
Theory	The theory which emerged from the Grounded Theory research, makes a contribution to the academic world and practice. The theory helped inform the KM model, hence contributing to academia and practice as the KM based DP model would.
Combined innovative use of research methods	The combined use of systems theory, grounded theory, root cause analysis, pareto analysis and the CATWOE allows other researcher to learn from the researcher combined application of the various methods. It allows other researchers to

	learn about the usability of the methods and implementability for other similar research.

Table 16. Research contribution in tabular form

The objectives of the research were also to design and develop a KM based DP model grounded in the findings of the research, validate the model and identify tools for further improvement of the DP process. These objectives were met, and therefore fulfilled the aim of the research. Identifying the aims and objectives was important in ensuring the KM based DP model was relevant and current and also led on to the identification of areas for further research.

8.4 Evaluation of research approach

The abductive approach of which GT is an example was chosen for the purpose of this research. In particular emerging design GT by Strauss and Corbin was chosen as literature was used alongside the primary research in order to stimulate the thinking of the researcher and to be open to the viewing DP as subsystem of the whole healthcare system. Abduction is a technique for generating explanations or plans for given observations or goals (Russo et al., 2001),

GT allowed for observations, themes and categories to emerge, which then proceeded to formulate and theory which informed the KM-based DP model. Grounded theory allowed for the core areas of the problems to be categorised, with the help of a root cause analysis. This was then further drilled down into core areas that required immediate attention for the improvement of the DP process by the Pareto analysis, which then informed the design and development of the KM based DP model.

8.5 Evaluation of research process

The research process was divided into the secondary research and the primary research. The most challenging part of the research method was the primary research, but was one of the most enjoyable parts of the research. The time spent with healthcare personnel, project planners, patients and carers was time consuming but enjoyable as it provided the researcher with a realistic interpretation of the situation. The results of the primary research validated the claims in the popular press, thus justifying the need for the research. Themes and categories emerged from the primary and secondary research, rather than being imposed on it and the nature of the research method meant that categories were continually revisited until theoretical saturation was reached. Review of literature was continually carried out throughout the primary research. The root cause analysis helped arrange common themes to a category and upon completion of the first root cause analysis, new themes and categories emerged. The root cause analysis greatly helped the researcher in separating the problem areas, which then was further reinforced by the Pareto analysis.

There are some areas that would have been handled differently, or rather more in depth if the research were to be repeated. Observing healthcare personnel interaction with patients and carers, would greatly add value to the research, as it would allow for a clearer identification of the way in which interaction currently takes place, and suggest areas for improvement. Similarly, observing the decision making process of the multidisciplinary team during DP could be done in order to gain a better understanding of how the multidisciplinary team makes the decision and the time taken to make the decision. If the research were to be repeated, patients could be involved in the validation process by using the model to discharge a patient and assessing patient and carer satisfaction post discharge.

8.6 Evaluation of the research outcomes

The outcomes of the research were the KM-based DP model and the theory. Both the primary research and secondary research made a significant contribution to the research and the conceptualisation of the model. The KM-based DP model is based on the concept of KM specifically for DP. The model provides an overview, and allows for a further drill down and is customisable to the different settings of NHS trusts. It is extensible, as extra elements can be defined subject to the nature of the NHS trust.

The model recognises the complexity of the healthcare system, and the complexity of DP. It recognises the importance of patient and carer involvement, interagency collaboration, accountability and sharing of knowledge amongst healthcare personnel. The model also recognises the importance of building of knowledge, for future DP instances, and the importance of personalised knowledge about a patient when planning discharge. The model recognises the importance of having the right amount of information at the right time to be used by the right people. The ‘customisable’ nature of the model is demonstrated in the validation, when healthcare personnel i.e. doctors and nurses from different trust settings, i.e. a Cancer Trust, an A&E doctor, a general physician and a doctor in a mental health trust were able to relate to the model and identify that the components highlighted in the model were of relevance to their DP process. They recognised the versatility of the model, and the ability for customisation to take place and build on the model. The theory brought the problem areas to attention and indicated a direction to move toward in order to improve the problem area, i.e. DP in this case.

8.7 Directions for future research

Section 7.4 considered the issues with the current research area, the limitations in terms of budgetary constraints. It proceeded to propose directions for future research and enhanced technologies which could aid in the DP process. The thesis identified the key issues pertaining to DP which will need to be focused on to extend the KM based DP model in an NHS setting, and improve the DP process. The outcomes have implications for both practice and academia. Future research in technological areas is developing technology to support the proposed model. Ways of extracting knowledge from knowledge assets using appropriate technologies (i.e. knowledge mining) are being developed constantly. If the KM-based DP model should be adopted in practice, its use should be monitored and learning's should be fed back through an improvement process to make the KM-based DP model more effective.

The KM-based DP model provides a foundation for extracting knowledge about patients and allowing technologies such as the Internet of Things to be developed around patient care, by capturing knowledge of patients from non-human sources (e.g. sensor networks). Other researchers can use the experience of this research in the application of GT to enhance their own research in similar areas. They can also further develop models based on the KM-based DP model.

8.8 Conclusion

The investigation for this research grew out of initial reports in the popular press with regards to problems with patient discharge, the problems with increased emergency readmissions and delayed discharge. The course of the investigation led to further investigation in to the popular press, and into reports by the NHS in order to identify if the problem was as depicted or it was a mere embellishment. The further investigation led the researcher to believe that the problem was indeed a problem that required investigation, which then led the researcher to establish contact in the NHS to carry out the primary research in, in order to achieve a realistic identification of the problems and for the outcome to be grounded in the research findings.

As part of the investigation, the problem was defined, the causes of the problem, the consequences of the problem, the stakeholders affected and the actions required to improve the problem was identified. Identifying the stakeholders led to the CATWOE which was carried out in Chapter 6, in order to gain a better understanding of who will be using the model in a real world setting and who will be validating the model. The stakeholders are the patients, carers, doctors, nurses and administrative staff. However the people using the model are the doctors, nurses and administrative staff such as project planners. This by no means implies that patients and carers are removed from the equation, rather it means that patient and carer involvement is highlighted in the model, from the research findings during the primary research with patients and carers. The key area is healthcare personnel interaction with patients and carers, which is highlighted in the model, hence its use by healthcare personnel as they will directly deal with discharging a patient, and now with the model, it will ensure patients and carers are involved.

The core of the investigation is the development of the KM-based DP model and the newly-developed theory that is grounded in the research and the research findings. The KM-based DP model highlights the core areas requiring attention in order to improve the overall DP process, and indicates how other categories and problematic areas will be improved as a consequence of the improvement in the processes in the core areas. The KM-based DP model and the theory allows for further research to be conducted both in practice and in academia and to further build on the model.

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Appendix A. Interview Questions

1.0 Former Patient and Carer Interview Questions

Meeting 1.

Question	Finding from interviews	Former Patient (Diagnosis) /Carer	Systemic Feature
Were you asked if you/the patient was ready to go home before the decision to discharge was made? Were you told when you/the patient was to be discharged i.e. the date and time?	I was told that I was going home shortly before I was discharged; a nurse asked me if I felt ok, but I was not particularly asked. It didn't matter to me, because I couldn't wait to go home anyway.	Meeting 1.1Former Patient - Breast Cancer	Failure to include patient and family in DP Process Failure to consider patient and carer perspective Lack of documentation of DP Lack of informed decision making Lack of process Poor patient, carer and healthcare personnel communication Patient and family inadequately informed about discharge date
	I wasn't asked anything. No one told me or asked me anything. I was always there but no one told me anything. There was no specific date of discharge mentioned.	Meeting 1.1Carer of Breast Cancer Patient	
	No I wasn't asked if I was ready to go home, after my procedure I was told I was being discharged at a certain time.	Meeting 1.2 Former Patient – Hernia Operation	Failure to consider patient perspective Patient not involved in DP Process Carer Involvement in DP process Lack of Process Lack of documentation of DP Poor Patient and Healthcare personnel communication Patient and family adequately informed about discharge date
	I was asked if I would be able to take care of my husband. I was told when he would be discharged.	Meeting 1.2 Carer of Hernia Operation Patient	
	Yes I was asked if I felt ok to go home. I was told in the morning that I was going to be discharged at 12pm, but I left the hospital at about 4pm.	Meeting 1.3 Former Patient – Kidney Stone	Patient perspective considered Lack of process Poor carer and healthcare personnel communication Patient and family inadequately informed about discharge date Lack of carer involvement in DP process Failure to consider carer perspective Language and cultural barrier Lack of informed decision making
	I wasn't asked anything. I think they didn't talk to me much because my English isn't so good and maybe because kidney stone is quite a normal thing for men, maybe because it wasn't very serious. They didn't tell me when he was going to be discharged; he rang me and told me he was going to be discharged, so my daughter and I went up to the Hospital to bring him home.	Meeting 1.3 Carer of Kidney Stone Patient	
	I wasn't asked. I was told a few hours before I was to be discharged that I was leaving the hospital today.	Meeting 1.4 Former Patient – Heart Condition	Failure to consider patient and carer perspective Lack of documentation of DP process Lack of process Lack of informed decision making Lack of informed decision making Patient and family inadequately informed about discharge date
	I wasn't asked anything. In fact at the time my dad was discharged I wasn't there. So he was waiting in the discharge lounge as I rushed out of work to take him home.	Meeting 1.4 Carer of patient with heart condition	

			Poor patient, carer and healthcare personnel communication
Were you asked if you/the patient was ready to go home before the decision to discharge was made? Were you told when you/the patient was to be discharged i.e. the date and time?	No I wasn't asked if I was ready to go home. After the operation, I was in for a day and discharged the next day. The discharge took me by surprise, because I wasn't sure how long I was going to be in hospital.	Meeting 1.5 Former Patient – Back operation	Failure to consider patient and carer perspective Lack of documentation of DP Patient and family inadequately informed about discharge date Failure to include patient and family in DO process Failure to include patient and family in DP process Poor patient, carer and healthcare personnel communication
	I wasn't involved at all. I just stood there unsure about what to do, until I insisted I be involved. They weren't too pleased with me, I can tell you that. No one asked me if I could take care of her, if I knew what I was going to have to do, nothing of that sort.	Meeting 1.5 Carer – Back Operation	
	I wasn't. You would think after a stroke, you would receive better care. I can't say the care was bad, but it's just that you are pretty shaken up after a stroke and you would expect to be given more attention and information about when you are to be discharged and what to do once you go home. My family was told what I had just gone through and that I should take rest. I wasn't told when I was going to be discharged I guess because of the condition I was in, but I found out the night before I was going to be discharged.	Meeting 1.6 Former Patient – Stroke	Failure to consider patient perspective Failure to include patient and family in DP process Lack of documentation of DP Patient and family inadequately informed about discharge date Poor patient and healthcare personnel communication Patient insufficiently equipped with information to recover at home Lack of process Lack of empathy
	I wasn't asked if I was ready to go home and no, I wasn't given a date of discharge. I was told the day before though, that I was to be discharged the next day at a 10am and I was discharged at that time. It was a little rushed but my husband managed to sort it out.	Meeting 1.7 Former Patient – Ulceration of the stomach	Failure to consider patient and carer perspective Lack of documentation of DP Failure to include patient and family in DP process Lack of process Patient and family inadequately informed about discharge date Poor patient, carer and healthcare personnel communication
Were you asked if you/the patient was ready to go home before the decision to discharge was made? Were you told when you/the patient was to be discharged i.e. the date and time?	Different people were saying different things, the spinal department said I was ready to go, but the doctors in haematology were saying otherwise. It was chaotic really. No one particularly asked me if I was ok to go home or if I was ready or how I was feeling. I was told I would be discharged at 10am the of the next day but I was waiting about until 4pm	Meeting 1.8 Former Patient - Spinal related condition	Failure to consider patient and carer perspective Lack of documentation of DP Lack of process Patient and family inadequately informed about discharge date Failure to include patient and family in DP process Poor patient, carer and healthcare personnel communication Poor information sharing amongst healthcare personnel and departments Patient left feeling confused
Were you asked if you/the patient was ready to go home before the decision to discharge was made? Were you told when you/the patient was to be discharged i.e. the date and time?	They said mum would be discharged at 10am about 2 days before, so I took leave and we were ready and all packed. But we ended up waiting for about 5-6 hours, no one was coming to tell us anything. When I asked if she could leave, all I got was, 'we are getting everything ready for her to leave'.	Meeting 1.8 Carer - Spinal related condition	

			Long waiting times
Was the medication required, ready upon discharge and do/does you/the patient usually take your /their medication as prescribed?	Yes it was, and yes I do take my medicines as prescribed. Although I don't really like taking my medicines.	Meeting 1.1 Former Patient – Breast Cancer	Diligence in taking medication Medication ready upon discharge
	Yes her medicines were ready. We have a medicine container where we've organised all the tablets, so yes she does take her medicines according to the prescription	Meeting 1.1 Carer – Breast Cancer	
	Yes my medicines were ready and I do take the medicines as prescribed.	Meeting 1.2 Former Patient – Hernia	Diligence in taking medication Medication ready upon discharge
	His medicines were ready, and he usually takes his medicines as prescribed so there's no fussing over if he has taken the medicines or not.	Meeting 1.2 Carer – Hernia	
	Yes the medicines were ready, I take them just like the prescription says because I don't want to be in the hospital again	Meeting 1.3 Former Patient – Kidney Stone	Diligence in taking medication Medication ready upon discharge
	He got his medicines when we were leaving hospital. I check with him that he has taken his medicines, so yes he does take his medicines according to the prescription	Meeting 1.3 Carer – Kidney Stone	
	Yes my medicines were ready, and I do take my medicines as prescribed.	Meeting 1.4 Former Patient – Heart condition	Diligence in taking medication Medication ready upon discharge
	Yes his medicines were given to us when dad was discharged from hospital. He's usually good with taking his meds.	Meeting 1.4 Carer – Heart condition	
	Yes the medicines were ready and I am diligent with taking my medicines	Meeting 1.5 Former Patient – Back Operation	Diligence in taking medication Medication ready upon discharge
	The medicines were ready, and yea medicines are always taken according to the prescription	Meeting 1.5 Carer – Back Operation	
	My medicines were given to me when I was discharged and I do take them according to the prescription. When you are old like me medicines are part of your daily meal.	Meeting 1.6 Former Patient – Stroke	Diligence in taking medication Medication ready upon discharge
	Yes the medicines were ready, and I do take them as prescribed.	Meeting 1.7 Former Patient - Ulceration of the stomach	Diligence in taking medication Medication ready upon discharge
	I did not receive my medicines on the day of discharge; in fact I was made to wait for a long time because of the medicines. In the end they said come back when they give me a call to pick up the medicines. They called me the next day and said the medicines were ready for collection. I do take my medicines as prescribed	Meeting 1.8 Former Patient - Spinal related condition	Diligence in taking medication Waited for medication
	We had to go back the next day to pick up the medicines. I wouldn't say it was ideal but we just wanted the medicines and to have as little to do with the hospital really. Yes mum takes her medicines according to the prescription and I check up with her.	Meeting 1.8 Carer – Spinal related condition	

Was your /the patient's medication and prescription explained to you?	Not really, the prescription was on the box and we just took it according to what was written. It was much later when I went for a check up and when I got another box of my medicines that the nurse was shocked that when I was prescribed initially no one told me I had to dispose of the medicine box carefully and that I should avoid the sun because of the chemotherapy.	Meeting 1.1 Former Patient – Breast Cancer	Poor patient, carer and healthcare personnel communication Medication not explained adequately to patient Poor information sharing amongst healthcare personnel and departments Unsure what questions to ask healthcare personnel Lack of process
	No mention was made about how to take the medicines. They never really volunteer information until you ask. Which is funny, how do you know if you are asking the right thing.?	Meeting 1.1 Carer – Breast cancer patient	
	The prescription details were on the box, so I just followed that	Meeting 1.2 Former Patient – Hernia	Poor patient, carer and healthcare personnel communication Lack of process Medication not explained properly
	He just took it according to what was on the box	Meeting 1.2 Carer – Hernia	
	Yes, they explained the medications to me.	Meeting 1.3 Former Patient – Kidney stone	Poor carer and healthcare personnel communication Lack of process Medication not explained properly
	No they didn't tell me anything, but they told him what to do.	Meeting 1.3 Carer – Kidney stone	
	I suppose because it was written on the boxes it was understood I just take what's written on the box. They did ring me though about a week later and told me to stop taking my medication. No reason was given and they were in a rush saying 'You don't have to continue you medications, and when you come for your next check up we will see how you are'	Meeting 1.4 Former Patient – Heart condition	Poor patient, carer and healthcare personnel communication Medication not explained properly Patient and carer unsure about what questions to ask Patient left feeling confused Lack of process Lack of accountability amongst healthcare personnel
	We just read what was pasted on the medicine packaging and followed that. We were a little confused when we got the call about the medication. But I suppose you just muddle through in the NHS.	Meeting 1.4 Carer – Heart condition	
	I wasn't told how to take my medicines. Infact my husband insisted that the medicines be written down on a piece of paper and the prescription written down too, just so we could keep a track	Meeting 1.5 Former Patient – Back operation	Poor patient, carer and healthcare personnel communication Medication not explained properly Lack of accountability amongst healthcare personnel Lack of process
	Like my wife said, I had to kick up a storm to get things done. It was almost like caring to know what was going on was a crime	Meeting 1.5 Carer – Back operation	
	I followed the prescription according to what was pasted on the medicine packets	Meeting 1.6 Former Patient – Stroke	Poor patient, carer and healthcare personnel communication Lack of process Medication not explained properly
	I wasn't told how to take my medications, and wasn't told what to do. It's very disappointing really. I can understand, what about others who can't.	Meeting 1.7 Former Patient – Stomach Ulceration	Poor patient, carer and healthcare personnel communication Lack of process Medication not explained properly Patient left feeling confused
	Hoping for an explanation on how to take the medication was asking for too much really.	Meeting 1.8 Former Patient – Spinal related condition	Poor patient, carer and healthcare personnel communication

	Are you joking? Of course not.	Meeting 1.8 Carer – Spinal related condition	Lack of process Medication not explained properly
Did the healthcare personnel ask you about your/the patients previous visit/s to the hospital and any treatment undergone?	Well in my case, since this isn't the first time I've got cancer they do ask. They have my records too	Meeting 1.1 Former Patient – Breast Cancer	Patients previous visits and treatment undergone in hospital asked Poor carer and healthcare personnel communication
	They didn't ask me anything.	Meeting 1.1 Carer – Breast Cancer	
	Yes they did. My medical records hadn't arrived yet, because I was transferred to a private hospital for the surgery after a long wait.	Meeting 1.2 Former Patient – Hernia	Patients previous visits and treatment undergone in hospital asked Delay in sharing medical records Lack of process Long waiting times Poor carer and healthcare personnel communication
	No they didn't ask me	Meeting 1.2 Carer – Hernia	
	Yes they did ask me if I had been admitted before and why	Meeting 1.3 Former Patient – Kidney Stone	Patients previous visits and treatment undergone in hospital asked Poor carer and healthcare personnel communication
	They didn't ask me anything	Meeting 1.3 Carer – Kidney Stone	
	I was asked yes	Meeting 1.4 Former Patient – Heart condition	Patients previous visits and treatment undergone in hospital asked Lack of process Poor carer and healthcare personnel communication
	I wasn't included in that part of the conversation	Meeting 1.4 Carer – Heart condition	
	The healthcare personnel did ask	Meeting 1.5 Former Patient – Back Operation	Patients previous visits and treatment undergone in hospital asked Lack of process Poor carer and healthcare personnel communication
	I wasn't asked	Meeting 1.5 Carer – Back Operation	
	I wasn't asked. I wasn't really in any condition to be asked anything	Meeting 1.6 Former Patient – Stroke	Poor patient and healthcare personnel communication Lack of process
	Yes I was asked, what was frustrating was 15 different people who checked me for different things, trying to diagnose what was wrong with me asked me the same thing again and again.	Meeting 1.7 Former Patient – Stomach Ulceration	Delay in sharing medical records Lack of process Lack of sufficient information about patients Lack of adequate storing of information about patients Poor information sharing amongst healthcare personnel and departments Inadequate communication amongst healthcare personnel
	Yes they did ask	Meeting 1.8 Former Patient – Spinal related condition	Patients previous visits and treatment undergone in hospital asked Poor carer and healthcare personnel communication Lack of process
	No, I wasn't asked anything. Actually it's not a bad idea is it to ask me too, considering I was there every step of the way. There might have been something I knew that could have helped. Maybe not in this case but for someone else, who knows?	Meeting 1.8 Carer – Spinal related condition	

Would you like your/the patient's healthcare provider to have your/the patient's information about previous treatments and medication before treating you?	Yes, it would make it easier wouldn't it.	Meeting 1.1 Former Patient – Breast Cancer	Patients and carers keen on healthcare personnel having their medical records before hand.
	Yes that would be good	Meeting 1.1 Carer – Breast Cancer	
	Yes	Meeting 1.2 Former Patient – Hernia	
	Yes that would make it easier	Meeting 1.2 Carer – Hernia	
	Yes	Meeting 1.3 Former Patient – Kidney Stone	
	Yes	Meeting 1.3 Carer – Kidney Stone	
	Yes	Meeting 1.4 Former Patient – Heart condition	
	Absolutely	Meeting 1.4 Carer – Heart condition	
	Yes	Meeting 1.5 Former Patient - Back Operation	
	Yes	Meeting 1.5 Carer – Back Operation	
	Sure, why not. I can't imagine that causing any harm	Meeting 1.6 Former Patient – Stroke	
	Yes, definitely. That's what we need	Meeting 1.7 Former Patient – Stomach Ulceration	
	Yes, that would be good	Meeting 1.8 Former Patient – Spinal related condition	
	Yes	Meeting 1.8 Carer – Spinal related condition	
Were your/the patients symptoms and prognosis clearly described to you by the healthcare personnel when in hospital?	You could say it was vaguely described. There was a lot of medical jargon thrown in.	Meeting 1.1 Former Patient – Breast Cancer	Prognosis and symptoms not clearly explained Poor patient, carer and healthcare personnel communication
	Not really, I put pieces together from what I heard here and there	Meeting 1.1 Carer – Breast Cancer	
	Yes it was, I had a good Doctor he explained a lot to me	Meeting 1.2 Former Patient – Hernia	Prognosis and symptoms clearly explained only to patient Poor carer and healthcare personnel communication Carer insufficiently equipped with information
	They explained a lot to my husband	Meeting 1.2 Carer – Hernia	
	Yes they did, they told me what to look out for, what I will feel with the medication and what I should do to flush the stone out	Meeting 1.3 Former Patient – Kidney Stone	Prognosis and symptoms clearly explained only to patient Poor carer and healthcare personnel communication Carer insufficiently equipped with information
	They were explaining it to my husband, but not me.	Meeting 1.3 Carer- Kidney Stone	
	I was told how much bed rest I needed, activities I should avoid and to stay away from alcohol for some time	Meeting 1.4 Former Patient – Heart Condition	Prognosis and symptoms clearly explained only to patient Carer insufficiently equipped with information Poor carer and healthcare personnel communication Lack of process
	I was listening in when they were talking to dad. But when discharged I wasn't there so I'm not sure if there was anything specific that they mentioned to him	Meeting 1.4 Carer – Heart Condition	
	I would say it was vaguely described. They came in and told me things; mind you I was in a lot of pain, so I took in whatever I could understand.	Meeting 1.5 Former Patient – Back Operation	Prognosis and symptoms not clearly explained Poor patient, carer and healthcare personnel communication Lack of process Patient insufficiently equipped with information Carer insufficiently equipped with information
	I wasn't told anything.	Meeting 1.5 Carer – Back Operation	

Were your/the patients symptoms and prognosis clearly described to you by the healthcare personnel when in hospital?	Yes they told me about what I would feel and how long I should rest for, not anyone in my family though.	Meeting 1.6 Former Patient – Stroke	Prognosis and symptoms clearly explained only to patient Carer insufficiently equipped with information Poor carer and healthcare personnel communication
	To be honest, I wasn't told anything. I'm not trying to be funny but I must say it was a confusing and stressful experience	Meeting 1.7 Former Patient – Stomach Ulceration	Patient insufficiently equipped with information Poor patient and healthcare personnel communication Prognosis and symptoms not clearly explained Lack of process Patient left feeling confused
	It was all quite rushed when I was leaving hospital, so you could see they were sort of ticking a box by running through my symptoms and prognosis. I didn't really understand much and there wasn't much time to ask questions.	Meeting 1.8 Former Patient – Spinal related condition	Poor patient, carer and healthcare personnel communication Lack of process Prognosis and symptoms not clearly explained Patient left feeling confused Patient insufficiently equipped with information Carer insufficiently equipped with information Insufficient time to talk to patients and carers
	They were talking to mum but that's about all it was.	Meeting 1.8 Carer – Spinal related condition	
Did you receive a discharge summary and could you understand it?	Yes we received it. It had a lot of words and I'm no doctor. I didn't really understand much.	Meeting 1.1 Former Patient – Breast Cancer	Prognosis and symptoms not clearly explained Waiting for discharge summaries Lack of providing information in simple terms
	No who reads all that, it was for the GP and too complicated to understand	Meeting 1.1 Carer – Breast Cancer	
	Yes I did, about two weeks later in the post and yes I could understand it	Meeting 1.2 Former Patient – Hernia	Waiting for discharge summaries Easily understood discharge summaries
	Yes we received it, and I understood it easily.	Meeting 1.2Carer – Hernia	
	Yes I did. It was the same letter they sent to the GP and was posted to my house. There was a lot of information there; I think it was easier for the GP to understand it.	Meeting 1.3 Former Patient – Kidney Stone	Prognosis and symptoms not clearly explained Waiting for discharge summaries Lack of providing information in simple terms
	We got the letter two weeks later, it had all the things for the GP to understand about my husband's problem, but I couldn't understand it too much.	Meeting 1.3 Carer – Kidney Stone	
	I got a copy of the discharge summary about two and a half weeks after I was discharged. There was a lot of medical jargon I must say. I mean I could make it out but it wasn't entirely clear.	Meeting 1.4 Former Patient – Heart Condition	Prognosis and symptoms not clearly explained Waiting for discharge summaries Lack of providing information in simple terms
	Yes we did get the discharge summary. It was more for the GP and had lots of medical terms. I think I minimally understood it.	Meeting 1.4 Carer – Heart Condition	
	We did receive the discharge summary but that is more for the GP clinic I think. I could understand it	Meeting 1.5 Former Patient – Back Operation	Prognosis and symptoms not clearly explained

Did you receive a discharge summary and could you understand it?	fairly, but I wasn't entirely confident about it.		Waiting for discharge summaries Lack of providing information in simple terms
	Yes we got the discharge summary. I could make out the description in it but I think I would have liked it better if they addressed it to our understanding.	Meeting 1.5 Carer – back operation	
	Yes I did receive it after two and a half weeks. I could understand it more or less.	Meeting 1.6 Former Patient – Stroke	Discharge summary understood to a certain extent Waiting for discharge summaries
	3 weeks later, I got a copy of the discharge summary and it was then that I knew what my diagnosis was. So you can imagine how I would have felt for 3 weeks not knowing what I had. What I should be eating/drinking and what I shouldn't. Yes I could understand it, but the least they could have done was catered the letter to me and my understanding.	Meeting 1.7 Former Patient – Stomach Ulceration	Prognosis and symptoms not clearly explained Waiting for discharge summaries Waiting for declaration of chronicity Lack of providing patients information in simple terms
	We received the discharge summary about 2 and a half weeks after I was discharged, but that had a lot of medical jargon in it. I could make out some things here and there but it wasn't written for my understanding.	Meeting 1.8 Former Patient – Spinal related problem	Prognosis and symptoms not clearly explained Waiting for discharge summaries Lack of providing patients information in simple terms
	The discharge summary was filled with a lot of words I didn't understand. It was for the GP, so they would understand it. Nothing specifically to us though.	Meeting 1.8 Carer – Spinal related problem	
Were you/the patient given follow up appointments upon discharge?	Yes I was, sometimes they would cancel on the day of the appointment because the consultant wasn't around or was busy.	Meeting 1.1 Former Patient – Breast Cancer	Poor patient, carer and healthcare personnel communication Lack of timely follow up Poor staff management Lack of process
	Yes the appointments were given on discharge, but no one told me about it.	Meeting 1.1 Carer – Breast Cancer	
	Yes I was given a follow up check up	Meeting 1.2 Former Patient – Hernia	Timely follow up
	Yes he had the follow up date	Meeting 1.2 Carer – Hernia	
	No, they said they I should make an appointment with the GP for a check	Meeting 1.3 Former Patient – Kidney Stone	Timely follow up as patient didn't require further treatment
	No he didn't need a check up anymore. They told him he needed to drink a lot of water and that's all	Meeting 1.3 Carer – kidney Stone	
	Yes I was given a follow up; they told me when I got discharged that the date will be in the discharge summary. My appointment was about a month and a half after discharge.	Meeting 1.4 Former Patient – Heart condition	Waiting for discharge summaries Poor patient, carer and healthcare personnel communication Long waiting times Lack of timely follow up Lack of process
	These things don't happen immediately. They take time. It's beyond me what will happen if someone's condition got out of control.	Meeting 1.4 Carer – Heart Condition	
	I wasn't given a follow up date upon check up. But when I got the discharge summary after a long wait it said I should contact the GP for a follow up	Meeting 1.5 Former Patient – Back Operation	Long waiting times Waiting for discharge summaries Poor patient, carer and healthcare personnel communication Lack of timely follow up Lack of process
	No follow ups were given. We had to make an appointment with the GP.	Meeting 1.5 Carer – Back Operation	
	I was given a follow up appointment on the day of discharge.	Meeting 1.6 Former Patient – Stroke	Timely follow up
	I wasn't even told what was wrong with me, let alone a follow up discharge. I only found out what was wrong with me two weeks later when	Meeting 1.7 Former Patient – Stomach Ulceration	Poor patient, carer and healthcare personnel communication Waiting for declaration of chronicity

	I received a copy of the discharge summary.		Long waiting times Lack of process Waiting for discharge summaries Lack of timely follow up
Were you/the patient given follow up appointments upon discharge?	Yes a tentative date of follow up appointment was given, as they said they weren't sure about the consultants availability. On the day of the appointment when I arrived, they had no clue I was even supposed to be there. They had no record of me at all, and they had to go from department to department looking for my records.	Meeting 1.8 Former Patient – Spinal related condition	Lack of timely follow up Poor information sharing amongst healthcare personnel and departments Communication error Poor patient, carer and healthcare personnel communication Lack of process
	It was shocking what happened. Not knowing the patient was meant to be there, it's no wonder the NHS is in the papers all the time.	Meeting 1.8 Carer – Spinal related condition.	
Were your/the patient's symptoms, prognosis, recommendations, medications and dosage details given to you in writing? Could you understand it?	I was given these booklets, I think it's a general one they give all people. Mind you they should have included how to dispose your medicine packets in the booklet considering its highly toxic and its one of the things they forgot to tell me. You should have heard the nurse's shock when she found out how I disposing the empty medicine packets. Later on they started putting a bright red label on the packets with a caution. It makes it seem like I'm the first cancer patient they are treating	Meeting 1.1 Former Patient – Breast Cancer	Medication not explained properly Carer insufficiently equipped with information Patient insufficiently equipped with information Poor patient, carer and healthcare personnel communication
	Who reads through those booklets, they just had lots of words. It's too much to read.	Meeting 1.1 Carer – Breast Cancer	
	Yes they gave me booklets, pretty standard ones.	Meeting 1.2 Former Patient – Hernia	Patient insufficiently equipped with information Carer insufficiently equipped with information
	Yes, he was given booklets	Meeting 1.2 Carer – Hernia	
	No I wasn't given anything in writing.	Meeting 1.3 Former Patient – Kidney Stone	Patient insufficiently equipped with information Carer insufficiently equipped with information
	We didn't get anything.	Meeting 1.3 Carer – Kidney Stone	
	When I was discharged I got some booklets, they were the standard booklets. It was like leaving school.	Meeting 1.4 Former Patient – Heart Condition	Patient insufficiently equipped with information Carer insufficiently equipped with information
	Yes we got some booklets, but to be honest we didn't really read it. We've been muddling through.	Meeting 1.4 Carer – Heart Condition	
	We weren't given anything to take home	Meeting 1.5 Former Patient – Back Operation	Patient insufficiently equipped with information Carer insufficiently equipped with information Patient left feeling confused Poor patient, carer and healthcare personnel communication
	None, we weren't given anything to take home and sort of read further to understand after the whole confusion is over. They tell you don't trust the internet but they don't answer your questions either. What are you supposed to do?	Meeting 1.5 Carer – Back Operation	

Were your/the patient's symptoms, prognosis, recommendations, medications and dosage details given to you in writing? Could you understand it?	I didn't have anything to take home. I did get a paper of numbers I can call in an emergency.	Meeting 1.6 Former Patient – Stroke	Patient insufficiently equipped with information Poor patient, carer and healthcare personnel communication
	I wasn't given anything or told anything. I didn't know if I should carry on with my daily exercise. Nothing of that sort was told to me. In the discharge summary it was said that I should get my meds from the GP, and the letter was addressed to the GP. So I wasn't personally given any recommendations, advice or best treat myself. I just get by.	Meeting 1.7 Former Patient – Stomach Ulceration	Patient insufficiently equipped with information Poor patient, carer and healthcare personnel communication Patient left feeling confused
	We got a booklet of phone numbers to call.	Meeting 1.8 Former Patient – Spinal related condition	Patient insufficiently equipped with information Poor patient, carer and healthcare personnel communication Patient left feeling confused Carer insufficiently equipped with information
	It was the discharge summary that was a substantial piece of information to refer to.	Meeting 1.8 Carer – Spinal related condition	
Do you feel the healthcare personnel (e.g. doctors and nurses) communicated well with you in hospital? Were you comfortable talking to them?	Not really, I wish I could get my consultant and sit her down and have a conversation with her. She is always in such a rush. She's easily excitable and I always come out feeling I wish I had more time with her. My husband just gets angry because he doesn't really understand what she is saying. She even asked me once, when my scans showed no improvement, what we should do about it. I mean how am I supposed to know, I thought she was the doctor.	Meeting 1.1 Former Patient – Breast Cancer	Failure to consider patient and carer perspective Poor patient, carer and healthcare personnel communication Insufficient time to talk to patients and carers Language and cultural barrier Patient uncomfortable sharing with healthcare personnel Lack of empathy
	Oh, don't get me started. I've told my wife I don't want to go with her anymore. We end up having to wait for the consultant for almost an hour or more each time. If it's school holidays, forget about meeting the consultant. They are on leave and there's no one else. Then when we finally get to meet her, she's in such a rush and that makes me really annoyed.	Meeting 1.1 Carer – Breast Cancer	
	Yes I had a really good doctor and the nurses were easy to talk to as well	Meeting 1.2 Former Patient – Hernia	Patient had sufficient time with doctor Patient and carer were comfortable with healthcare personnel
	He had a really good Doctor and the nurses were lovely.	Meeting 1.2 Carer – Hernia.	
	The nurses were friendly, the doctor saw me a few times. It was the nurses who explained more things to me.	Meeting 1.3 Former Patient – Kidney Stone	Poor patient, carer and healthcare personnel communication Insufficient time to talk to patients and carers
	No one really talked to me, but from what I saw they were friendly with my husband. We didn't ask any questions. They didn't tell me how I should take care of my husband, if I should do something or look out for something.	Meeting 1.3 Carer – Kidney Stone	

Do you feel the healthcare personnel (e.g. doctors and nurses) communicated well with you in hospital? Were you comfortable talking to them?	I wouldn't say they are the most easy to talk to and that's mostly because they don't really have much time. They are always in such a rush and they have so much going on at the same time. I think it was easier to talk to the nurses	Meeting 1.4 Former Patient – Heart condition	Patient uncomfortable sharing with healthcare personnel Poor patient, carer and healthcare personnel communication Insufficient time to talk to patients and carers Lack of empathy
	I agree, it's easier to talk to the nurses. The Doctors have an air of arrogance about them, and during their rounds they usually talk to the nurses and talk at us rather than to us .	Meeting 1.4 Care – Heart Condition	
	There isn't enough time to talk to them to gauge if you are comfortable or not. They don't come to you to tell you anything except during the rounds and when you ask. When my doctors went on holiday, nothing was done, I was just there in hospital. I wasted 1 week in hospital. How is it they didn't know the doctor was going off on holiday. They could have sent me home. No one could make a decision when the doctor was away, it was really frustrating. In the initial stages I was transferred from ward to ward and no one was saying anything to us that was informative.	Meeting 1.5 Former Patient – Back operation	Insufficient time to talk to patients and carers Poor staff management Patient uncomfortable sharing with healthcare personnel Lack of timely follow up Failure to consider patient and carer perspective Lack of patient and carer involvement in DP Poor patient, carer and healthcare personnel communication Transfer between nursing units Lack of empathy
	The nurses are friendly, the doctors are almost invisible. They all seem so rushed and barely have time. It's more about them that the sick patient really. So no, I'm not comfortable.	Meeting 1.5 Carer – Back Operation	
	I was quite comfortable talking to both the doctors and nurses whenever I saw them. But they were busy most of the time, I do wish I had more time with them, so I could clear my doubts. To me a stroke is a big deal, so I had lots of questions; I do wish they would take it more seriously. I suppose they see 1000's of people like me, but even so.	Meeting 1.6 Former Patient – Stroke	Poor patient, carer and healthcare personnel communication Lack of timely follow up Lacking empathy
	I didn't feel uncomfortable, but there wasn't enough time to talk to the doctors. They didn't have time to reassure me about what was going on. All I had was different people asking me the same questions again and again but no one telling me or involving me in what the diagnosis might be. At night one day I was transferred to the cancer ward, with no reason given. It was quite scary, because you look around at everyone around you, you don't know what's wrong with you and you start to wonder, do I have cancer. Is that what it is? The next day when I could find a nurse, I stopped her and asked and she said I was transferred to the cancer ward because all the beds were full. Can you imagine that. I was telling my husband, I'm strong I can handle it, but what if it was someone who wasn't strong, or someone older?	Meeting 1.7 Former Patient – Stomach Ulceration	Insufficient time to talk to patients and carers Lacking empathy Transfer between nursing units Poor patient, carer and healthcare personnel communication Failure to consider patient perspective
	I didn't really feel comfortable, in the sense I didn't feel comfortable enough to ask questions because they were always in such a rush. They	Meeting 1.8 Former Patient – Spinal related condition	Insufficient time to talk to patients and carers Lacking empathy

	were almost talking to themselves most of the time too and I didn’t understand half of what they were saying. It’s the terms they use, it’s all very clinical.		Healthcare personnel lack of providing information to patient in simple terms Patient uncomfortable sharing with healthcare personnel Poor patient, carer and healthcare personnel communication
	They are friendly, the nurses are. But no one voluntarily explains what is the matter until and unless chased after and only when we ask questions. I really thought it worked the other way.	Meeting 1.8 Carer – Spinal related condition.	
How long did it take you/the patient to get an appointment in hospital?	This isn’t the first time I’ve had cancer, so in my case I initially went in for a scan. The results for that took about a month to come back, and an appointment with the consultant another two weeks after the test results. So I suppose it took a long time.	Meeting 1.1 Former Patient – Breast Cancer	Lack of timely follow up Poor staff management Poor information sharing amongst healthcare personnel and departments Long waiting times Delay in sharing medical records Lack of process
	We waited about a month and a half for the appointment	Meeting 1.1 Carer – Breast Cancer	
	I was on the waiting list for about four months. It was only after four months that they transferred me to a private hospital. My records were slightly delayed in being transferred to the private hospital when I went in for my appointment	Meeting 1.2 Former Patient – Hernia	
	He waited a really long time; it took about four months before something was done.	Meeting 1.2 Carer - Hernia	
	I had very bad pains so I went to the AnE. I had to wait a while in the AnE, because it was crowded. They checked me about one hour after waiting	Meeting 1.3 Former Patient – Kidney Stone	Long waiting times- for an AnE the patient should be attended to immediately Lack of process
	We went to the AnE when he was in pain, and then after one hour of waiting the doctor checked him.	Meeting 1.3 Carer – Kidney Stone	
	It took me a very long time to get my appointment. I waited nearly three months to get a slot for the operation. There were tests, misplacement of my test results and having to repeat tests. It was awful. I was in agony, The operation was pushed back.	Meeting 1.5 Former Patient – Back Operation	Lack of timely follow up Poor staff management Poor information sharing amongst healthcare personnel and departments Long waiting times Communication error Lack of process
	Every time the phone rang we kept thinking, it better not be the hospital delaying the surgery again.	Meeting 1.5 Carer – Back Operation	
	I was rushed in to the AnE	Meeting 1.6 Former Patient – Stroke	Immediate care
	My GP referred me to the hospital; I got the appointment date about three weeks after the GP’s recommendation. Then in the hospital back and forth it took ages about two and a half months maybe before they could figure out what was wrong with me.	Meeting 1.7 Former Patient – Stomach Ulceration	Lack of timely follow up Poor staff management Poor information sharing amongst healthcare personnel and departments Long waiting times Lack of process
	The initial appointment took a long time after the GP’s referral. It took about five weeks to get that initial appointment. Then the back and forth was a nightmare, because different departments were checking me, asking me the same questions over and over, it’s like they don’t talk to one another in there. I had so many tests and each time I had to wait for about two to three weeks before the next plan of action was taken	Meeting 1.8 Former Patient – Spinal related problem	

	It was a lot of waiting. Four to five weeks for an initial appointment and after that two to three weeks for results to come through and a decision to be made about what's next.	Meeting 1.8 Carer – Spinal related problem	
Did you/the patient require extra services upon discharge e.g. physiotherapy and how long did you have to wait for it?	I was provided with the Macmillan Nurse services and my nurse got in touch with me soon after I was discharged. She is lovely, she's always checking to make sure I am ok and doing the right thing.	Meeting 1.1 Former Patient – Breast Cancer	Macmillan nurse, took care and initiative in getting to know the patient and making the patient feel comfortable. Lacking empathy – amongst NHS healthcare personnel in the hospital. Families lack support and interaction with community resources
	Yes the extra service she needed was some help and that was the Macmillan Nurse. I don't think we could have made it without her. Honestly some of the things she helped us with, we never got that sort of help in the NHS.	Meeting 1.1 Carer – Breast Cancer	
	I didn't require any extra services.	Meeting 1.2 Former Patient – Hernia	No extra services required
	He didn't need anything, just rest really.	Meeting 1.2 Carer – Hernia	
	I didn't need any extra services	Meeting 1.3 Former Patient – Kidney Stone	
	No he didn't	Meeting 1.3 Carer – Kidney Stone	
	I needed some physiotherapy. My appointments were given to me about a month after I was discharged. There were some cancellations because they were booked up, but they were replaced. It was a bit unprofessional.	Meeting 1.5 Former Patient – Back Operation	Lack of timely follow up Poor staff management Poor information sharing amongst healthcare personnel and departments Long waiting times Lack of timely follow up
	Yes the physiotherapy, which helped tremendously which was delayed and some cancellations here and there took about a month before it started.	Meeting 1.5 Carer – back operation	
	I needed physiotherapy. It was arranged, the arrangement was a little chaotic, because I got the date for the first appointment about two weeks later. Then when I went in for the physiotherapy I had to wait for a very long time, there were others at the same time I was booked, everyone was waiting for the same slot.	Meeting 1.6 Former Patient – Stroke	
	I didn't need any extra services	Meeting 1.7 Former Patient – Stomach Ulceration	No extra services required
	I didn't need any extra service, just lots of rest.	Meeting 1.8 Former Patient – Spinal related problem	
	No there wasn't any extra service that was needed.	Meeting 1.8 Carer – Spinal related problem	
Did any of the healthcare personnel ask if your home condition was conducive for your/the patient's recovery? For e.g. if you had to climb stairs to get to your room, or if your heating at home was working or if you had anyone to help you?	No I wasn't asked	Meeting 1.1 Former Patient – Breast Cancer	Lacking empathy Failure to consider patient and carer perspective Lack of patient and carer involvement in DP Poor patient, carer and healthcare personnel communication Lack of process Failure to include patient and family in DP process
	We weren't asked no	Meeting 1.1 Carer – Breast Cancer	
	No I wasn't asked	Meeting 1.2 Former Patient – Hernia	
	I wasn't asked	Meeting 1.2 Carer – Hernia	
	No they didn't ask	Meeting 1.3 Former Patient – Kidney Stone	
	No	Meeting 1.3 Carer – Kidney Stone	
	I wasn't asked that	Meeting 1.5 Former Patient – Back Operation	
	That's asking for too much, no they didn't. We muddled through the entire thing really	Meeting 1.5 Carer – back operation	

	No, they didn’t ask	Meeting 1.6 Former Patient – Stroke	
	No I wasn’t asked	Meeting 1.7 Former Patient – Stomach Ulceration	
	I wasn’t asked	Meeting 1.8 Former Patient – Spinal problem	
	No	Meeting 1.8 Carer – Spinal problem	
Have you/the patient ever been readmitted to hospital?	I haven’t	Meeting 1.1 Former Patient – Breast Cancer	Patient was not readmitted
	She hasn’t	Meeting 1.1 Carer – Breast Cancer	
	No, I haven’t	Meeting 1.2 Former Patient – Hernia	
	He hasn’t	Meeting 1.2 Carer – Hernia	
	No I haven’t	Meeting 1.3 Former Patient – Kidney Stone	
	No he hasn’t	Meeting 1.3 Carer – Kidney Stone	
	No I haven’t	Meeting 1.5 Former Patient – Back Operation	
	That hasn’t happened	Meeting 1.5 Carer – back operation	
	No I haven’t	Meeting 1.6 Former Patient – Stroke	
	No	Meeting 1.7 Former Patient – Stomach Ulceration	
	Not me	Meeting 1.8 Former Patient – Spinal related problem	
	No	Meeting 1.8 Carer – Spinal related problem	

2.0 Healthcare Personnel

Meeting 2

2.1 Administrative Staff Questions and Responses

Questions	Responses	Administrative Staff	Systemic Feature
Is the date of admission and discharge of the patient recorded on a patient record system?	Yes it is	Meeting 2.1 A	Date of admission and discharge recorded
	Yes it is done after the patient is discharged. The admission date is registered when they are admitted	Meeting 2.2 B	
	Yes it is	Meeting 2.3 C	
If a patient has a follow-up readmission or is re-admitted is it recorded under the patients file in the system?	It is yes, but it depends if the patient is re-admitted for the same reason or for a different reason	Meeting 2.1 A	Lack of sufficient information about patients.

	If the patient has been re-admitted for the same reason they initially came in, yes it is recorded. If it is a different reason, it is treated as a new admission	Meeting 2.2 B	New medical problem posed by patient. Lack of process. Lack of informed decision making. Failure tracking multiple pathology.
	If they come in for the same reason as the previous admission yes	Meeting 2.3 C	
Would a central location of notes be valuable for yourself when discharging a patient?	Yes it would, so the healthcare staff don't have to go chasing after one another	Meeting 2.1 A	Lack of process Inadequate communication amongst healthcare personnel Poor information sharing amongst healthcare personnel Delay in sharing medical records
	It would, it will encourage better sharing of information and possibly speed up some processes	Meeting 2.2 B	
	It certainly would yea, some healthcare staff when you talk to them say they are so busy. It's because they are bogged down with playing the waiting game	Meeting 2.3 C	
Would automated messages, sent to all units responsible for preparing for a patients discharge upon decision to discharge be helpful? E.g. messages sent to pharmacy, physiotherapy, social care etc.	Definitely, but that might cost a lot to implement	Meeting 2.1 A	Cost shunting Poor information sharing amongst healthcare personnel Inadequate communication amongst healthcare personnel Lack of process
	It would, saves time on hanging on the phone and being put on hold between different departments	Meeting 2.2 B	
	Yes it would	Meeting 2.3 C	
Is there a bed management system that stores information of beds occupied?	No there isn't. It is done manually	Meeting 2.1 A	Lack of process Poor bed management
	No there isn't. It is done manually	Meeting 2.2 B	
	It's done manually	Meeting 2.3 C	
Do patients receive their appointment dates for physiotheraphy and other additional services, if it is required on the day of discharge?	Not really	Meeting 2.1 A	Lack of timely follow up Families lack support and interaction with community resources Lack of process Inadequate communication
	They do sometimes, sometimes a nurse rings them to tell them when their next appointment date is	Meeting 2.2 B	

	Sometimes they do, other times they get the appointment date by a phone call	Meeting 2.3 C	amongst healthcare personnel
Are carers/family made aware of their physiotheraphy and other additional services dates?	That would depend on the nurses really, sometimes they don't have enough time or don't know themselves to explain anything to carers	Meeting 2.1 A	Insufficient time to talk to carers Families lack support and interaction with community resources Poor carer and healthcare personnel communication Failure to consider patient and carer perspective Failure to include patient and family in DP process
	If the carers are present when a nurse is explaining it yes, otherwise it might not be possible	Meeting 2.2 B	Poor carer and healthcare personnel communication Families lack support and interaction with community resources Failure to consider patient and carer perspective Failure to include patient and family in DP process
	There isn't much time, and the nurses usually find out quite last minute themselves	Meeting 2.3 C	
Are patients made aware of their follow up check up's upon discharge?	Yes they do	Meeting 2.1 A	Timely follow up
	Yes they do	Meeting 2.2 B	
	Yes they do	Meeting 2.3 C	
Are carers/family notified about the follow up check up dates?	If they are with patients at the time of providing the follow up dates yes	Meeting 2.1 A	Poor carer and HP communication Lack of process Insufficient time to talk to carers
	If carers are with patients, yes	Meeting 2.2 B	
	If the family is together with the patient yes	Meeting 2.3 C	

2.2. Former Patient Participation Group's Questions and Responses

Meeting 3

Question	**Responses**	**Former Patient participation group Participants**	**Systemic Feature**
Do you feel healthcare personnel have enough time to spend with patients and carers?	Not particularly, we have a better relationship with our GP's because we know them better and for longer. The doctors are always in such a rush in the hospital, and when they aren't they have time to explain it to you. But I have had Doctors who explain things to you in their medical terms, which makes it difficult to understand. So I just go to my GP who knows how to explain things to me	Meeting 3.1 A	Insufficient time to talk to patients Lack of providing information in simple terms Uncomfortable talking to healthcare personnel Poor patient and healthcare personnel communication Lack of process
	They don't spend enough time. They should really, it would reduce the anxiety some patients feel	Meeting 3.2 B	Insufficient time to talk to patients Lack of process Patient left feeling confused
Do you think if healthcare personnel had more time to spend explaining the prognosis & symptoms to patients and carers, they would be better prepared to cope at home?	Most certainly. If patients are given a glimpse of what it is like to understand what is going on with them, they will start to take better care of themselves. Well most of them at least. And their carers would know how to take better care of them	Meeting 3.1 A	Patient and carers insufficiently equipped with information to recover at home Poor patient and healthcare personnel communication Lack of process
	Absolutely. If you know what you are doing and why, it makes a lot more sense and you don't find yourself confused, worried, or avoiding things because you don't know if you can do it or not. You also don't develop unrealistic expectations about your recovery.	Meeting 3.2 B	
How involved would you say carers and families are in your experience?	Not very involved. Some carers insist of being involved, and in those cases yes they are involved. You rarely see voluntary information being given to the carer	Meeting 3.1 A	Poor carer and healthcare personnel communication

	It depends really on the trust, the day, how busy they are. But I think they do their best to get the carers involved.	Meeting 3.2 B	Insufficient time to talk to patients
Do you think giving patients bite sized information about their condition on paper and perhaps online with recommended links such as to the map of medicine will be helpful?	Yes it would, because being given booklets is intimidating and patients don't read it. If information is given in simple terms, patients could take it to their GP and it can be a two way conversation, which is what most patients want. And if they are savvy with computers, then yes they can explore further. If not we are here to show them how it works	Meeting 3.1 A	Patients and carers insufficiently equipped with information to recover at home Lack of process
	It certainly would. It would be helpful because people get lost reading too much. So if it was provided in simple terms, maybe in little charts or something attractive, it would make it easier to understand.	Meeting 3.2 B	Lack of providing patients information in simple terms Lack of process

2.3. *Nurses' Responses*

Meeting 4

Questions	Responses	Nurse	Systemic Feature
Does discharge planning commence upon admission?	It depends on the nurse in charge and depends on how sever the patient's condition is and how busy we are	Meeting 4.1 A	Poor staff management Lack of process
	Discharge planning does start when a patient is admitted for some patients; some patients might suddenly have other complications, so it gets a little tricky. Sometimes you know who might develop other complications and sometimes you don't. So it depends on the patient, how many staff we have, how long the patient is in for, sometimes when we have a change of shift delays can occur.	Meeting 4.2 B	Tacit knowledge not made explicit A hidden mix up Lack of process Lack of sufficient information stored about a patient Poor staff management Poor information sharing amongst healthcare personnel Inadequate communication amongst healthcare personnel
	Yes it does most of the time. With some patients things go according to plan, with other patients, they might require different tests, waiting for test results can be a pain, waiting for notes from different departments can cause delays. So it's these things which are not planned out. Sometimes you have to chase after different departments to get them talking. It's not their fault, we are all so busy and we have targets to meet.	Meeting 4.3 C	Waiting for lab results Lack of process Delay in sharing medical records Poor information sharing amongst healthcare personnel Having to meet the pressure of targets
Is the discharge plan of a patient regularly updated in the hospital, while the patient is still admitted?	Well it is on paper, or we make a mental note of it	Meeting 4.1 A	Lack of documentation of DP Lack of process Tacit knowledge not made explicit
	I usually make a note if there is any changes, so when there is a change in shift the next person in charge knows what's going on and who to chase for test results or approvals and those sort of things	Meeting 4.2 B	Sufficient documentation of DP

	It 's quite messy really because so many of us are dealing with it. You have to spend a few minutes understanding everyone handwriting, what they are trying to say. So not really, I wouldn't say the discharge plans are updated regularly	Meeting 4.3 C	Lack of documentation of DP Lack of process Poor information sharing amongst healthcare personnel Poor communication amongst healthcare personnel
Is a patient's date of discharge predicted upon admission?	I can estimate when a patient is going to be discharged because I have been doing this for almost 12 years now. So I know what they patients who are coming in for typically face and when they will be discharged. But if you are asking whether we let a patient know that this is an estimated day they will be discharged, yes we do sometimes depending on the severity of the patient’s illness.	Meeting 4.1 A	Tacit knowledge not made explicit Poor healthcare personnel and patient communication Lack of process
	Yes I more or less can estimate it, but we have to wait for the Doctors approval from the different departments if the patient needs to see different departments, we need to wait for test results, so sometimes it gets tricky but sometimes we can estimate a day.	Meeting 4.2 B	Tacit knowledge not made explicit Poor information sharing amongst healthcare personnel Waiting for lab results Lack of process Delay in sharing medical records
	A date is estimated, because I have been doing this for so many years you see. Not just myself, but many of the nurses too have so much experience. But some things are out of our control. When a patient is transferred between different departments, it gets a little difficult to predict dates, because they might have the final say, and they don't ask us anything until the last minute. Or if we have the final say, we have to chase after them for test results, for doctors notes. So it's not as simple.	Meeting 4.3 C	Tacit knowledge not made explicit Lack of process Delay in sharing medical records Waiting for lab results Poor information sharing amongst healthcare personnel Inadequate communication amongst healthcare personnel
Do you tell patients' the estimated day or/and time of discharge?	Sometimes we are so busy, and a change in shift might happen and during those times, there might be delays or a patient might not be told when they will be discharged.	Meeting 4.1 A	Poor patient and healthcare personnel communication Insufficient time to talk to patients Discharge date only known at the last minute Lack of process

	Yes I do, if I am the final person in charge of discharging a patient. Sometimes I have had to tell them really late, because we are so busy. Some patients get a notice well in advance	Meeting 4.2 B	Poor patient and healthcare personnel communication Lack of process Lack of accountability
	I do, but sometimes they end up waiting longer than when they were supposed to be discharged because other departments like the pharmacy might cause a delay, or we are still waiting for test results. It's alot of pressure on us, because we get questioned, why patients are still in hospital when it is out of our control.	Meeting 4.3 C	Poor patient and healthcare personnel communication Waiting for lab results Waiting for medication Lack of process
Do you have a clinical management tool that predicts the best date for discharge or is it done manually?	It is done manually	Meeting 4.1 A	Tacit knowledge not made explicit
	We do it manually	Meeting 4.2 B	Tacit knowledge not made explicit
	We are the tools in the office, the walking computers. We have all the information. So no, we do it manually	Meeting 4.3 C	Tacit knowledge not made explicit
Are patients consulted if they feel ready for discharge?	Sometimes yes	Meeting 4.1 A	Failure to include patient in DP process Poor patient and healthcare personnel communication
	Mostly yes, I can more or less tell if they are ready or not to go home.	Meeting 4.2 B	Tacit knowledge not made explicit Failure to include patient in DP process Lack of process Poor patient and healthcare personnel communication
	Yes when I have time I ask them, while other times we sort of know	Meeting 4.3 C	Tacit knowledge not made explicit Insufficient time to talk to patients
Are carers and family members consulted about a patient’s ability to return home?	Ideally it should be done, but we have so much to do and targets to meet. The pressure builds up and makes it difficult.	Meeting 4.1 A	Having to meet the pressure of targets Insufficient time to talk to carers Poor carer and healthcare personnel communication Lack of process
	Well if they are there when I am explaining things to the patient then yes, but otherwise, there isn't time really	Meeting 4.2 B	
	If the carers or family are around yes we do, otherwise everything moves so quickly you don't really get a chance to talk to anyone properly	Meeting 4.3 C	

Is a patients living condition investigated prior to discharge decision? E.g. do they have to climb up stairs, do they have food supplies, do they have gas and electricity?	Yes it is, depending on the patient. So sometimes it's more older patients who need this sort of attention.	Meeting 4.1 A	Patient’s local setting considered
	Yes it is, but it's mostly for older patients. Somehow for younger patients, not all of them might have someone to help them recover at home, but no one seems to look out for them	Meeting 4.2 B	Patient’s local setting considered
	For older patients yes, but when we check it's as though whatever we checked and noted doesn't affect the final decision.	Meeting 4.3 C	Patient’s local setting considered Lack of documentation of DP Poor information sharing amongst healthcare personnel Lack of process
Do you follow the discharge guidelines set by the department of Health when discharging a patient?	Yes we do, most of them	Meeting 4.1 A	Most discharge guidelines followed
	Most of it yes	Meeting 4.2 B	
	Yes, almost all of it is followed	Meeting 4.3 C	
Do patients receive their medication upon discharge and is the purpose of the medication and dosage explained to them?	Most of the time yes, it might involve some patients waiting for much longer than they expected but they do get it on the day	Meeting 4.1 A	Waiting for medication Lack of process
	Yes, unless it's extremely busy they might have to wait for a few hours. Patients and their family if they are there get really annoyed at this. You just want to go home really	Meeting 4.2 B	
	They do, but sometimes they have to wait ages until they get the medicines. I wish there was something we could do about that	Meeting 4.3 C	
Are carers and family advised on patient’s medication consumption?	Not really, once they get the medication they just want to leave	Meeting 4.1 A	Poor healthcare personnel and carer communication Medication not explained adequately to patient Lack of process
	They usually read it off the labels	Meeting 4.2 B	
	Yes they are, depending on the seriousness of the patients condition. But mostly patients have clear instructions on the medicine labels.	Meeting 4.3 C	
Is the prognosis and symptoms explained to patients and their carers?	The doctors do when they have the time, but i'm not sure patients understand it always. Patients are scared of big word and too medical words	Meeting 4.1 A	Lack of process Lack of providing information in simple terms Insufficient time to talk to patients Prognosis and symptoms not explained clearly
	Doctors are always in a rush, so when they do explain, it can seem rushed. You can see some patients want to spend more time with the Doctors but don't get that chance.	Meeting 4.2 B	

	I don't think it is explained enough. Or even if it is explained, it needs to be simplified. To simplify you need time, which we all don't have.	Meeting 4.3 C	
Do you feel you have enough time to spend with patients and carers?	Not really	Meeting 4.1 A	Insufficient time to talk to patients
	No	Meeting 4.2 B	
	Not as much as we should have	Meeting 4.3 C	
Do you feel if you had more time to explain the prognosis and symptoms, patients, their carers and families could be better prepared to cope at home?	Yes definitely	Meeting 4.1 A	Patient and carer insufficiently equipped with information to recover at home
	Yes	Meeting 4.2 B	Patient and carer insufficiently equipped with information to recover at home
	Definitely	Meeting 4.3 C	
What is your experience on sharing of patients notes and test results?	It can be a nightmare sometimes. Nobody talks to each other, everyone needs a push. No one knows who is in charge. You end up being put on hold.	Meeting 4.1 A	Lack of accountability Poor communication amongst healthcare personnel Lack of process
	Some days we get good communication and things flow in easy, some days when everyone is busy it's a different story	Meeting 4.2 B	
	It has it's good days and it has a fair share of bad days	Meeting 4.3 C	
Do patients know who they can contact in the event of an emergency, when they are discharged?	Most of the time they do	Meeting 4.1 A	Patients are given emergency contact numbers
	Yes they are given a book to read at home for some patients depending on their illness, and emergency contact numbers are provided there	Meeting 4.2 B	
	Yes they do	Meeting 4.3 C	
Is the patient’s registered GP clinic informed about the patients condition upon discharge?	Yes they get the discharge summaries	Meeting 4.1 A	Waiting for discharge summaries
	They are informed by the discharge summaries, which might take some time to reach them	Meeting 4.2 B	
	They know it through the discharge summaries, not immediately but after some time	Meeting 4.3 C	
Do you think a tool that predicts the risk of readmission would be helpful to planning discharge, especially for patients who are at high risk of readmission?	It would yes, especially for older patients	Meeting 4.1 A	Lack of process
	It would, but we need to know how to use it. So it's not sometimes that is like the latest fashion and dies out after a while	Meeting 4.2 B	

	Yes it will be helpful	Meeting 4.3 C	
Which age group of patients do you find emergency readmissions occur most frequently amongst? 0-16, 17-25, 26-35, 36-45, 46-55, 56-65, 66-75, 76-85, 86 and above	86 and above	Meeting 4.1 A	Failure tracking multiple pathology Lack of informed decision making
	86 and above	Meeting 4.2 B	
	76-85,and 86 and above	Meeting 4.3 C	
Which age group of patients do you find delayed discharge occur most frequently amongst? 0-16, 17-25, 26-35, 36-45, 46-55, 56-65, 66-75, 76-85, 86 and above	All age groups are affected by this	Meeting 4.1 A	Lack of process
	Delayed discharge you could say the older patients are affected because or the poor coordination with care homes, but other patients are affected too. When you have a weekend, or change in shifts or when a doctor is on leave delays happen	Meeting 4.2 B	Delay accessing care resources Lack of process Lack of informed decision making
	Delays, I would say everyone is affected by it. Because you might have a doctor on leave, or there's some confusion when shifts change with us nurses, or the lab results are delayed, or the pahrmacy is delayed, or care homes delay in responding or were contacted too late.	Meeting 4.3 C	Poor staff management Poor communication amongst healthcare personnel Poor information sharing amongst healthcare personnel Delay accessing care resources Lack of informed decision making Lack of process
Do you use the discharge planning self assessment tool as prescribed by the NHS?	Yes	Meeting 4.1 A	Discharge planning self assessment tool used
	Mostly yes	Meeting 4.2 B	
	Yes	Meeting 4.3 C	
Are discharge planning checklists completed and signed for each patient?	Yes	Meeting 4.1 A	Discharge checklists completed and signed
	Yes	Meeting 4.2 B	
	Yes	Meeting 4.3 C	

2.4. Doctors' Questions and Responses

Meeting 5

Questions	Responses	Doctor	Systemic Feature
Does discharge planning commence upon admission?	Technically it should. On paper it does, however the reality of it is it varies according to the patient's severity and condition	Meeting 5.1 A	Failure to commence DP upon admission Lack of process
	It does sometime. When it is not such a busy day and we dont have to rush, then yes it usually does. But on days when it is hectic, which is most days really, these processes are done according to the skill of the person in charge	Meeting 5.2 B	Tacit knowledge not made explicit Failure to commence DP upon admission Lack of process
	Not really, it varies according tot he person in charge at that time and how busy we are.	Meeting 5.3 C	Tacit knowledge not made explicit Lack of process
	Rarely I would say. We practice things according to plans for a few days, then things just go back to how they were. Doing things as they come. It can be slightly ad-hoc.	Meeting 5.4 D	Tacit knowledge not made explicit Failure to commence DP upon admission Lack of process
Is the discharge plan of a patient regularly updated in the hospital, while the patient is still admitted?	That would depend on the day, how busy we are, and how good everyone talks to each other. You find with some teams there's very little communication	Meeting 5.1 A	Lack of documentation of DP Poor communication amongst healthcare personnel Lack of process
	Yes it is, if there is one person or a team in charge. Sometimes we don't know who is really in charge of it. So these process get overwhelming	Meeting 5.2 B	Lack of accountability Lack of process Lack of documentation of DP
	Not really, we don't have time, we have time pressures to meet	Meeting 5.3 C	Lack of process Lack of documentation of DP Having to meet the pressure of targets
	It is on days when we aren't very busy, but when shifts happen things get a little messy.	Meeting 5.4 D	Inadequate communication amongst healthcare personnel Lack of documentation of DP Lack of process Lack of accountability

Is a patient's date of discharge predicted upon admission?	It would depend on the patient and what they have come in for. If it is cases we have dealt with often, we more or less are able to predict a date.	Meeting 5.1 A	Tacit knowledge not made explicit
	If it is cases that commonly occurs, then yes because we usually know what to expect. Sometimes, something unexpected could happen and that could change things.	Meeting 5.2 B	
	Yes I would say so. Most of the time when its a patient with a diagnosis that is commonly seen, you more or less know from experience what to do.	Meeting 5.3 C	
	When its cases that are common, yes a rough estimate is made.	Meeting 5.4 D	
Do you tell patients' the estimated day or/and time of discharge?	The nurses usually do that	Meeting 5.1 A	Poor patient and healthcare communication Lack of accountability Lack of process Insufficient time to talk to patients
	It's signed off and the nurses usually communicate it to the patient	Meeting 5.2 B	
	During rounds if there is time to spend with patients, yes they will be told, but the nurses usually handle these things	Meeting 5.3 C	
	I would say the nurses usually deal with discharge dates of patients	Meeting 5.4 D	
Do you have a clinical management tool that predicts the best date for discharge or is it done manually?	Not in our trust no we don't, although that would be potentially useful. We do it with our years of experience I would say	Meeting 5.1 A	Tacit knowledge not made explicit
	No, it's done manually	Meeting 5.2 B	
	Not in this trust, these things come with doing it again and again	Meeting 5.3 C	
	We dont, I wouldsay when you do handle dishcarging patients everyday, it becomes routine	Meeting 5.4 D	
Are patients consulted if they feel ready for discharge?	The nurses do ask patients that sometimes, it would be best to ask nurses that	Meeting 5.1 A	Poor patient and healthcare personnel communication Lack of process
	During rounds I do, but sometimes the pressure is just too much to get patients out	Meeting 5.2 B	
	I think the nurses do. They get more time to spend with the patients	Meeting 5.3 C	

	If there is time, they are asked. But we more or less can tell, again it depends on what the patient has been admitted for.	Meeting 5.4 D	Poor patient and healthcare personnel communication Lack of process Tacit knowledge not made explicit
Are carers and family members consulted about a patient’s ability to return home?	Not that I am aware of, the nurses might know this better	Meeting 5.1 A	Poor carer and healthcare personnel communication Lack of process
	Sometimes	Meeting 5.2 B	
	If we have time yes on occasion.	Meeting 5.3 C	
	It all depends on the severity of the cases. If it is very serious, yes, if not, not really.	Meeting 5.4 D	
Is a patients living condition investigated prior to discharge decision? E.g. do they have to climb up stairs, do they have food supplies, do they have gas and electricity?	The nurses do that	Meeting 5.1 A	Poor patient and healthcare personnel communication
	It's the nurses responsibility. I have alot on my plate	Meeting 5.2 B	Poor patient and healthcare personnel communication
	I get a rough idea when I have time to talk to the patients, but the nurses look in to all that	Meeting 5.3 C	Poor patient and healthcare personnel communication Tacit knowledge not made explicit
	It's the nurses who do that, they get more time with the patients	Meeting 5.4 D	Poor patient and healthcare personnel communication
Do you follow the discharge guidelines set by the department of Health when discharging a patient?	More or less yes, but most of it is done through experience	Meeting 5.1 A	Tacit knowledge not made explicit
	Yes it is to an extent, some things I modify according to the situation	Meeting 5.2 B	
	It depends on the patient, their severity. Sometimes you can follow the plan, sometimes you need to be spontaneous	Meeting 5.3 C	
	Some of them are.	Meeting 5.4 D	
Do patients receive their medication upon discharge and is the purpose of the medication and dosage explained to them?	When there is time it is explained. The nurses usually deal with it. Most of the time patients do receive their medications on the same day. However there are cases where patients have had to return for their medication	Meeting 5.1 A	Waiting for medication Poor patient and healthcare personnel communication Lack of process

	Patients mostly get their medication on the same day. Mostly the indications are clearly given to them on the labels of the medications	Meeting 5.2 B	Poor patient and healthcare personnel communication Lack of process
	Medications comes with their dosage and frequency explanation labelled clearly on the package	Meeting 5.3 C	Poor patient and healthcare personnel communication Lack of process
	Medicine packages are quite clearly labelled	Meeting 5.4 D	Poor patient and healthcare personnel communication Lack of process
Are carers and family advised on patient's medication consumption?	When we have time yes	Meeting 5.1 A	Poor carer and healthcare personnel communication Lack of process
	The nurses do sometimes, they too are very busy and under alot of pressure	Meeting 5.2 B	
	They, just like the patients are get the information they need from the medicine packages	Meeting 5.3 C	
	They rely on the medicine package too	Meeting 5.4 D	
Is the prognosis and symptoms explained to patients and their carers?	Some patients are willing to know what is going on, while others are either too ill, scared or don't really understand. It would depend on whether the carer is present during the explanation or not.	Meeting 5.1 A	Prognosis and symptoms not adequately explained Lack of process
	Yes it is explained to patients, and if the carers are there then yes	Meeting 5.2 B	Prognosis and symptoms not adequately explained Lack of process
	It is, when the patients are not too ill and sometimes carers ask more questions. So when there is time yes I do try to explain what I can	Meeting 5.3 C	Prognosis and symptoms not adequately explained Lack of process
	I do, both patients and carers can be quite inquisitive and especially these days, everyone has their ipad and they are checking what you say while you explain it to them. While there are patients who aren't too keen in knowing more, they just want to get out of the hospital. We also have instances where there isn't enough time to spend with a patient and their family	Meeting 5.4 D	Prognosis and symptoms not adequately explained Lack of process Insufficient time to talk to patients

Do you feel you have enough time to spend with patients and carers?	Not really to be honest, we are under alot of pressure to get things done, we are short staffed at times, and more than that we have so many things to do at once, it does get a little hectic at times	Meeting 5.1 A	Poor staff management Insufficient time to talk to patients Lack of process
	Not as much as I would like	Meeting 5.2 B	Insufficient time to talk to patients Lack of process
	Not as much as we should be getting. The volume of patients doesn't match the time we have, and the number that should be discharged and new patients readmitted	Meeting 5.3 C	Insufficient time to talk to patients Lack of process
	No, but we have so many appointments booked and so much paper work.	Meeting 5.4 D	Insufficient time to talk to patients Lack of process
Do you feel if you had more time to explain the prognosis and symptoms, patients, their carers and families could be better prepared to cope at home?	They might do yes, alot of them rely on the Internet which can be a double edged sword	Meeting 5.1 A	Patient and carer inadequately equipped with information to recover at home Lack of process
	Yes they certainly would. But how do you find the time, with all the paper work and the patients to see	Meeting 5.2 B	
	Yes they would	Meeting 5.3 C	
	Yes. They might feel more comforted if we had the time to spend with them	Meeting 5.4 D	
What is your experience on sharing of patients notes?	it's a messy affair and there can be delays.	Meeting 5.1 A	Waiting for medical records Lack of communication amongst healthcare personnel Poor information sharing amongst healthcare personnel Lack of process
	Getting it from different departments can take ages sometimes. You wouldn't think we were in the same hospital	Meeting 5.2 B	
	It's slow	Meeting 5.3 C	
	With the internet these things should happen instantly, but unfortunately it takes time	Meeting 5.4 D	
Do patients know who they can contact in the event of an emergency, when they are discharged?	Some patients receive booklets with information for them about their condition, and it contains emergency numbers to contact. Other patients get it in their discharge summaries which they get via the post	Meeting 5.1 A	Patients are provided with emergency contact numbers

	Patients might not get it immediately, they get it in the discharge summaries posted to them	Meeting 5.2 B	
	Yes they usually know who they should contact in the dishcarge summary which is posted to them. When they leave hospital, depending on the reason they were admitted yes they do get contact numbers	Meeting 5.3 C	
	They do in the discharge summaries which they get about two weeks after discharge.	Meeting 5.4 D	
Is the patient’s registered GP clinic informed about the patients condition upon discharge?	Yes they receive the discharge summaries. It doesn't get to them immediately but they do get it within a week.	Meeting 5.1 A	Waiting for discharge summaries
	Yes they get the discharge summaries, which takes some time.	Meeting 5.2 B	
	Yes, it's in the discharge summaries, and that might take some time to get to them	Meeting 5.3 C	
	It's in the discharge summaries	Meeting 5.4 D	
Do you think a tool that predicts the risk of readmission would be helpful to planning discharge, especially for patients who are at high risk of readmission?	Yes it would, but we would need to be told how to use it	Meeting 5.1 A	Lack of process
	Yes it would. But sometimes new things are introduced, but there is no follow up and they just become obsolete	Meeting 5.2 B	
	If it was used consistently yes, some new systems are brought in, and once the excitement fades it sort of becomes yesterday's news	Meeting 5.3 C	
	It would yes. I would like to see us use it.	Meeting 5.4 D	
Which age group of patients do you find emergency readmissions occur most frequently amongst? 0-16, 17-25, 26-35, 36-45, 46-55, 56-65, 66-75, 76-85, 86 and above	76-85 and 86 and above	Meetign 5.1 A	Failure tracking multiple pathology Lack of informed decision making
	86 and above	Meeting 5.2 B	
	86 and above	Meeting 5.3 C	

	76-85 and 86 and above	Meeting 5.4 D	
Which age group of patients do you find delayed discharge occur most frequently amongst? 0-16, 17-25, 26-35, 36-45, 46-55, 56-65, 66-75, 76-85, 86 and above	Almost all age groups are affected by this	Meeting 5.1 A	Poor communication amongst healthcare personnel Poor staff management Poor information sharing amongst healthcare personnel Lack of informed decision making Lack of process
	All the categories can be affected by this	Meeting 5.2 B	
	Anyone here can be delayed in getting discharged, it's just the way the procedures are	Meeting 5.3 C	
	Anyone can be delayed in going home	Meeting 5.4 D	

Appendix B. Validation Responses

Questions					**Responses**				
	Doctor A	**Doctor B**	**Doctor C**	**GP**	**Nurse A**	**Nurse B**	**Project Lead**	**Project Lead**	**Systems Developer**
Do the categories in the DP model e.g. Improved internal communication, improved interagency collaboration etc cover all areas of DP?	Need to show or state that discharge planning starts preadmission or upon admission	Yes it covers all areas of DP. Its great you have said patients information and involvement is important and show it is important. But I think in your written description perhaps emphasise the importance of using patients feedback to the discharge plan.	It would be good to show that it is important that discharge planning starts upon admission, other than that yes it covers all the major areas. I like the inclusion of knowledge.	You have covered all the important areas very well.	Yes the areas that are important for discharge planning have been thought of very well and covered here. I think though, we need to emphasise the involvement of the multidisciplinary team.	Is it possible to show that interagency collaboration is really important, because sometimes the patients are ready for discharge but the communication will the after care isnt established well in advance, they aren't prepared, the paper work is amiss. So if that is talked aobut more maybe then yes it's great.	The areas are important. Emphasis on data analysis at each level of the model should be included. Analysis meaning, the knowledge requirements are collected and analysed. The sort of analysis would vary but the fact that it is analysed by a multidisciplinary team, and the analysis happens at every stage is important.	Absolutely the areas are very important, and you've done a good job researching it.	These areas are important I believe. They are the actual problem areas arranged very clearly to show the logic, flow and the interaction between them.

Do the categories prompt the right questions to be asked?	They do. They model is great because it provides and overview and allows customisation according to different situations and nature of treatments. Doctors don't like routine so much, so this is good because it gives a precise overview and allows customisation to sit on it.	They do actually. I think it gives room for the different types of trusts and yet focuses on what is important and common among most trusts	Yes they do. With the use of the word knowledge you have managed to capture the important areas and the actions very well.	They do.	The categories do. It prompts the right questions and triggers the right actions. General actions which is quite flexible. A level of flexibility is important.	I think they do yes.	They do, the connectivity of the questions to the actions needs improved connectivity	It does prompt the right questions. It would be better if you show that the questions are prompted and a multidisciplinary team make decisions based on the questions and analyse the results they have and what needs doing next. Also who needs to be contacted and how if they are external agencies they need to be contacted in advance so when the patient is discharged the external care agencies are ready to receive the patient and you avoid the revolving door situation.	The responses triggered seem correct to me

Do the categories prompt the involvement of the right actors?	Yes overall it does, more attention should be made on interagency collaboration and working with a multidisciplinary team	It does, an emphasis on patient involvement and multidisciplinary team more would be better	I would like to an active involvement of the multidisciplinary team and also how external care agencies are contacted promptly so when a patient is discharged contact has been made with the external care to be prepared to receive the patient. Perhaps you could bring this out more in your description if you feel you don't need to show it in the model.	It does. I did think that I didn't notice the importance of the involvement of the multidisciplinary team, because many of the decisions we make involves a group.	It's like driving a car you know. Doctors just want to go in and drive, not have to think too much about functionality, they are used to the car and they just do it. So I think it does.	It does. I think maybe involving the multidisciplinary team where needed should be inserted somewhere, because the multidisciplinary team help a constant review and check to make sure the diagnosis and treatment is going smoothly.	Yes it does, the multidisciplinary team should be emphasised	Yes it does	From the work I have done, yes it does

Do the categories prompt the right actions to be taken?	Yes they certainly do, with a few tweaks here and there, adding the multidisciplinary team, emphasising the interagency collaboration and that discharge planning starts upon admission or even before it is good to go.	Analysis of the knowledge requirements at each stage is important and the output of analysis fed to each level in the model. Analysis will be how the data will be analysed i.e. multidisciplinary team and the use of the knowledge assets, and how the outcome of the analysis will be constantly reviewed and fed back. It doesnt prompt the right actions overall though.	It doest prompt the right actions yes, and the involves the right people.	Prompting the right action by the right people is important. So your model does highlight that, and give a clear overview to the people who actually carry out the tasks what their role is and what they should be looking out for.	It does	Yes it does.	The emphasis on the multidisciplinary team is important here, and what information about the patient is needed is important too. Electronic patient records have piles of information all stored away, but a doctor would need to know that they should also check blood sugar levels, blood pressure, is the patient on cancer treatment etc so that proper care is taken while in hospital, and these factors are considered when planning discharge. Someone's grandma was admitted for mental health issues, doctors and nurses didn’t know she had diabetes, so the food they	It does	1st layer to 2nd layer arrow needs to go further back, perhaps to 2nd layers knowledge requirement

							prescribed was normal food. Then after a few hours her conditioned worsened because her blood sugar levels shot up. So how do you indicate this in the model? This is why a multidisciplinary approach is good, so different people might be able to ask questions which can trigger using the right information in the decision making process.		
Are the categories presented in the model necessary? Is there anything you feel could be added or perhaps is not necessary?	Absolutely all the categories are very relevant and you have been quite thorough. I wouldn't say anything requires removing.	Yes they are very necessary and no I wouldn't remove any	The integration of multiple facets is worth targeting - for instance Map of Medicine is predominantly single disease entities and therefore is a challenge if a patient has several conditions at one presentation - this means we	Yes all the areas are important. I couldn't recommend anything you haven't already covered.	I think you've covered everything.	Everything looks thorough to me	Show the analysis feedback to the next level and to the discharge plan. There should be check in places at all stages of the model to indicate that analysis review and analysis is taking place by the multidisciplinary team because	The user should be able to analyse are we looking for the right information, do we have the right information. E.g. a patient who is admitted for mental health issues, decisions made upon admission and during discharge might	It seems so yes

			have a requirement to integrate information about a patient and their multiple conditions and then not just report our actions but also prioritise and record future plans/actions.				different people might spot different pieces of knowledge requirements about a patient that could be important to the discharge planning process.	be based on the issue admitted for.	
Does the KM based DP model reduce the effort required to carry out DP?	It does, if it is used as depicted in the model it will. If doctors and nurses can build on the model and use it according to their setting then yes it would reduce the effort required now. Alot of repeat processes occur now, which your model eliminates	It certainly would, because it very clearly shows who the actors are and what their role and input is. So if executed according to the model yes it will reduce the effort.	Yes it would reduce effort and reduce the mistakes and repear work, questions and tasks.	Definitely, it would be very helpful. It would help reduce all the unnecessary back and forth that we have to do, it would reduce cost and it would certainly reduce stress amongst the staff	Very helpful	This is what we need, and someone to make sure people are trained to understand how it works and to make sure it is constantly practiced.	Yes it would be helpful. If it is used consistently.	Very helpful	Yes it would reduce the effort because it will eliminate the redundancies and bring together systems. So that would reduce the delay in obtaining records and sifting through looking for the relevant and needed information
Are the factors simple and presented in a simple form in the model?	Yes they are very simple, and clean which is a good thing about it. You have not overcomplicated things.	Yes it is simple and crisp	Yes	It is simple	Yes it's very well laid out	I really like it. Very well organised	Yes you haven't over complicated which is good	It is simple and clear	For the relevant users yes

Is the model easy to use and understand?	It is easy to understand.	Very easy to understand	Fairly easy to understand I would say	It is easy to understand	Very clear yes	It is clear.	It is clear	Yes it is clear	It is easy to understand
Does the model cope with change, in a dynamic environment such as the NHS?	I think it has the ability to cope with change. If the systems are connected as shown in the model and if the processes are followed, then in a busy and constantly changing environment like the NHS it would be able to cope with the change, because the processes allow the people accountable to deal with the information they need at the time they are making the decision, and it prompts communication with the different internal and external agencies. That is why emphasising interagency collaboration is	If you sit in an AnE you will notice that when diagnosing a patient anything can go wrong. So yes, I think your model does, because it suggests possible technologies which can help with the change.	Knowing the knowledge requirements and have the right knowledge assets, with the knowledge of the multidisciplinary team and the right personnel, yes the model seems quite robust and capable of managing change.	I would think yes, because now the people know what their roles are and they know what needs to be done, so in the event something was to change, you know where to turn for more information. I think if we show the multidisciplinary team invovlement at every point is important because they trigger important questions to be asked and the situation is always revisited.	It is because now people know what they should be looking for, what they should be doing, there will be tools to help connectivity and sharing information, so yes.	Yes	It does to a certain extent now. I think if you include the areas about the multidisciplinary team and the analysis at each stage then it will look more complete. And I think then you have sold the model to the user.	You have done a good job and you've come a long way. It's great this is.	Again, for the relevant users yes it can cope with change because it assigns roles and responsibilities to the different users

	important. You have captured the essence of it, I feel you need to bring it out to show how important it is.								
Does the model integrate with existing systems?	It does yes, you have put map of medicine, I think localised map of medicine is important because it gives you treatments and pathways that are local to your region etc.	It does which is good.	Yes it does.	It does.	It does	It does	it can be integrated easily, because many trusts already are using different technologies, so they exist and integrating them is no issue.	There wouldn't be an issue, as you already know with your experience with the portal. The only issue would be availability of funding and people the decision makers saying ok to go ahead with the project.	It can be done, and has been done before
Will the model require heavy developing to integrate systems?							It would be a bit of work but not too complicated. It can be done is sprints to break it down and make it step by step.	It can be done	I wouldn't say heavy development because it can be segmented into phases and prioritised.

Do you find the model useful for DP?	Yes it is very useful for DP	Absolutely. It is long due	Yes	Definitely	Yes it does	Yes sure.	From a systems point of view its very helpful. From a drilled down view I think it can help doctors and nurses further by extracting further checklists, and other things that can be helpful for them. This might be too complex for them to use at the point of discharge planning because they are so busy, but I think it can help make supplementary material and resources which will greatly benefit the doctors and nurses. It is like a guide which is great.	Very useful	I think it's safe to say it is something that is needed
Do you think the model can actually be used?	It can be used, although there might be hesitation from higher authorities in the NHS as they might want to see the	Well it is important, it is achievable, but the question is will the targets and the people higher up in the NHS who don't really	Certainly. You would have a few people moaning about cost and unfortunately they are the decision makers who know little	It is very important. You might face some hurdles like people talking about cost, but they need to be convinced with	Yes very usable	Very much so.	It certainly is very implementable and will really benefit the system. You might get the person here and there talking	Definitely. The only obstacle I can see is people who don't quite understand the need for a thorough job being done,	You know the usual deal with projects. Too many cooks spoil the broth. So my only concern is your model getting divorced from

	monetary incentive to investing in implementing it. However from a practicality and usability perspective it is very useful and if used it can actually bring a lot of savings. Too much is wasted on double work currently.	understand technology well think it is useful. If left to me, I would implement it because the benefits it will bring it would be better than the cost in the long run. I’m not sure we have such visionaries in the NHS though.	about the day to day tasks but I think if the case is presented to them they will see what the benefits are.	the overall benefit.			about cost because it is a big project, so that would be interesting to see the excuses people come up with.	giving the ok. Most projects end up getting rushed and then what they intended to produce never turns out as initially planned.	your actual intention after too many people's involvement and their own individual agendas.

Appendix C. A comparison of procedures and practices of ten NHS Trusts against the Department of Health guidelines

Discharge Procedures	**Hampshire Community Health Care**	**SSSH Trust**	**Christie Trust**	**NHS Lothian**	**Salisbury Trust**	**Tameside Hospital**	**Pennine Acute Hospitals**	**Mid Cheshire Hospitals**	**Burton Hospitals**	**West Hertfordshire Hospitals**
DP & transfer planning commences before or on admission	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Identify whether the patient has simple or complex discharge and transfer planning needs					▨	▨	▨	▨	▨	▨
Involve the patient and carer in the decision making process	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Develop a clinical management plan for every patient within 24 hours of admission	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Set an expected date of discharge or transfer within 24–48 hours of admission and discuss with the patient and carer	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Clinical management plan reviewed with patient each day and any updates with regards to transfer or discharge made		▨						▨		▨
Plan discharges and transfers to take place over seven days to deliver continuity of care for the patient		▨	▨		▨	▨	▨	▨	▨	▨
Use a discharge checklist 24–48 hours prior to transfer	▨		▨	▨	▨	▨	▨	▨	▨	▨
Make decisions to discharge and transfer patients each day										
Coordinate medication with pharmacy		▨	▨	▨		▨	▨	▨	▨	▨
Involve multidisciplinary team for the DP meeting	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨
Ensure patient's needs e.g. Food, groceries, etc are taken care of, or there is someone to take care of it		▨	▨		▨			▨	▨	▨
Patients benefits arrangement sorted out prior to discharge		▨								
Interpreters arranged for patients with language barriers or speech disabilities			▨	▨	▨	▨	▨	▨	▨	
Patient, service users and carers involvement in the DP process	▨	▨		▨	▨	▨	▨	▨	▨	▨
Coordination with nutritionist		▨	▨	▨	▨	▨	▨	▨	▨	▨

Assign a social worker		▨	▨	▨	▨	▨	▨	▨	▨	▨