An examination of the
Feasibility and Acceptance
of
Process Mapping
in the
Canterbury District Health Board

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Abstract

Process mapping is used across the Canterbury District Health Board (CDHB) to record a variety of processes. Process mapping refers to the systematic approach of documenting the steps, activities and time required to complete a task. A process map provides a visual representation of the work-flow within a process. Little is known about the degree to which a process map successfully documents the process it intended to, how clinically useful process mapping has proven to be, and what the experience of developing one of these maps is like from both facilitator and “process owner” point of view.

Purpose of study

To examine issues of feasibility and acceptance around developing, documenting and applying process maps to a health context in the CDHB.

Method

130 participants were sampled; the participants were selected from pre-defined strata groups. The strata groups were derived from the Mental Health, Older Persons’ Health, Women’s Health and Christchurch Public Hospital Divisions. Inclusion criteria were established on the basis that prospective participants had to have had involvement or experience with documenting or using process maps. Data were collected from two sources: a self-report questionnaire developed specifically for this project and from semi-structured interviews. Data analysis was conducted from both a qualitative and quantitative framework. Quantitative data was analysed from a statistical perspective analysing general ratings of satisfaction, comparison across and between the strata groups. Thematic analysis was performed on qualitative material generated from the questionnaire and interviews.
**Results**
The majority of respondents identified that; they found the visual representation of a process map to be useful, a process map is a useful tool to capture health care processes, process maps have increased the individuals understanding of unit processes, the maps are readily accessible to individuals in the unit, process maps need to be updated to maintain an accurate reflection of the process, process maps add value, have successfully incorporate health care standards, have been useful in improving service delivery, and are able to accurately capture the processes of the unit. Nine themes which pertained to the issues of acceptance and feasibility, along with four other themes which fell outside the areas were identified from the interviews.

**Conclusion**
This study aimed to examine the issues of acceptance and feasibility in relation to the development and application of process maps in a health context. The health setting considered for this study was the CDHB. Process mapping in a health context is still in its infancy. Process mapping was originally developed for use in the manufacturing and services industries, and is widely known and applied throughout the business community. It has been suggested that process mapping offers the health services an opportunity to consider systems and/or experiences from a patient’s perspective. The study findings indicate a significant level of acceptance towards process mapping in the CDHB environment and confirm the feasibility of using a process map for representing health care processes. In conclusion this study should be viewed as a starting point in formally reviewing process mapping in the CDHB.
Key words/terms

Process; Process Map; Process Mapping; Acceptance; Feasibility; Health
Preface

The examination of the feasibility and acceptance of process mapping in the Canterbury District Health Board is based on the study conducted during January 2004 – March 2010 at Canterbury District Health Board, Christchurch, New Zealand.

This study is based around process mapping in the Canterbury District Health Board and the opinions expressed in this piece of work are those of the investigator and do not necessarily reflect those of the Canterbury District Health Board.

Due to unforeseen circumstances prolonging the period of time that this study required, from initially completing the research phase in late 2004 to completing the write up in early 2010, the investigator acknowledges that the application and manner of process mapping in the Canterbury District Health Board has undergone further evolution. As such the study findings need to be read in context as the research phase of this project was completed in 2004.
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Glossary

**Adaptive system:** A system that can change itself in response to changes in its environment in such a way that its performance improves through a continuing interaction with its surroundings.

**Business Process Analyst:** Is a specialised type of Business Analyst. They are responsible for collecting, documenting and analysing the needs of the business as well as the current processes that are in use.

**Business Systems Analyst:** Is the person responsible for analysing the business needs of the client to help identify business problems and propose solutions. Typically they perform a liaison function between the business and providers of services to the business.

**Canterbury District Health Board (CDHB):** Is a Christchurch, New Zealand based hospital and healthcare provider for the Canterbury region of New Zealand.

**Continuous quality management:** Is an approach to quality management that focuses on "process" rather than the individual; it promotes the need for objective data to analyze and improve processes.

**Information Services:** The department within the CDHB responsible for computers, networking and data management.
**Input:** something that is put in

**Health Information and Processes:** the department within the CDHB responsible for computer, networking and data management. The department operated from 2002 – 2004 before being renamed Information Services

**Healthlink South:** was a Crown Health Enterprise, which provided health services to Canterbury and the West Coast under contract to the Southern Regional Health Authority

**Output:** the material or product produced

**Process orientation:** when an organisation’s different workflows and processes are identified and modelled.

**Quality improvement:** an approach to the study and improvement of the processes of providing healthcare services to meet needs of clients

**Theme:** is a pattern found in the information that at a minimum describes and organises the possible observations and at maximum interprets aspects of the phenomenon.

**Visio:** a software programme that creates diagrams
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List of abbreviations

CDHB – Canterbury District Health Board
e.g. – for example
HIAP – Health Information and Processes
i.e. – that is
IDT – Interdisciplinary team
MDT – Multidisciplinary team
NHS – National Health Service
SPF – Service Provision Framework
SPSS – Statistical Package for the Social Sciences
Aims of study

The study aims to examine the feasibility and acceptance of developing and applying process maps to a health context in CDHB. The following objectives will be addressed:

1. A generic review of process mapping and its application in health care delivery.
2. An examination of the participants’ perceptions on what process mapping offers the patient, the wider organisation and the participant.
3. An exploration, from the perspective of the participant, of the extent to which process maps accurately represent the process.
4. Determining the participant’s degree of satisfaction with the chosen process mapping tool, including their views on its usability and usefulness.
5. An exploration of the experiences of both facilitator and process owner in documenting and applying process maps to service delivery in a health care setting.
1 Introduction

“A picture shows me at a glance what it takes dozens of pages of a book to expound”

Ivan Turgenev – Fathers and Sons 1862 (cited in Paradiso, 2003, p.46)

1.1 Introduction

This chapter introduces provides a contextual background to the study, by outlining the historical development of process mapping in the Canterbury District Health Board (CDHB). A broad introduction to process maps and process mapping is provided. It defines the terms “feasibility” and “acceptance” relating these definition to the study aims. Finally the scope of the study will be outlined and any study limitations will be introduced.

In 1995, a Business Systems Analyst from the Mental Health Division, Healthlink South Ltd, developed and implemented the Service Provision Framework (SPF). One aspect of the SPF is that it is used to identify how specific processes in any given workplace flow paying particular attention to the clinical processes of referral, assessment, treatment, review and discharge. It represents these processes in a process map (refer to Figure 1). A process map provides a visual representation of the work-flow within a process. Dictionary.com (2009) define a process map as a “Graphical representation of the sequence of steps or tasks (workflow) constituting a process from raw materials through to the finished product” (refer to Figure 1).
A process map uses general symbols and arrows to depict the steps in a process (refer to Appendix 1). Process maps often identify who is responsible for each step and documents the keys tasks or standards that are completed at each step of the process (Health Information and Processes (HIAP, 2003).

Process mapping refers to the systematic approach in documenting the steps/activities and time required to complete a task. Process mapping provides an effective way to assess operational performance through its graphical depiction of a process (Eiff and Suckow, 2008). An accurate process map will provide any organisation with a means of identifying task redundancies, process bottlenecks, workplace barriers, interdependencies, ineffective process co-ordination, poor communication, operational flow pressure points and clarify roles and responsibilities (Eiff and Suckow, 2008).

It is designed for ease of use in helping to identify, analyse and improve inadequate policies, procedures or work habits and additionally is recognised as a tool that is understood by all from frontline staff – through to executive management and provides all with a common understanding (Eiff and Suckow, 2008).
The use of formalised process mapping has diversified across the Canterbury District Health Board (CDHB) and is currently used in a variety of situations, including service reviews; identifying service delivery gaps and/or overlaps; identifying the current processes of the unit (“as-is”) and using the “as-is” process as a benchmark to develop the future “to-be” process; as a quality improvement aid; and as an alternative means of presenting complex, wordy documents in a pictorial format.

Little is known, within the CDHB environment, about the degree to which a process map successfully documents the process it intended to, the overall clinical usefulness of this tool, and what the experience of developing one of these maps is like from both facilitator (Business Process Analyst) and “process owner” (the individual whose work area is represented by the process map) point of view. This study was designed to examine both the feasibility and acceptance of process mapping in health care delivery within the CDHB.

1.2 Feasibility
The American Heritage Dictionary of the English Language (2000) define feasibility “as that which is capable of being accomplished, or is possible” For something to be feasible it would need to possess the quality of being ‘do-able’ and produce a logical outcome, which is appropriate to the issue being addressed. Feasibility is a concept concerned with the probability that something can happen and likelihood that it will happen. If something is found to be feasible then it is logical to proceed with it.

When considering the issue of feasibility in relation to the scope of this study the following types of feasibility need to be considered: resource, cultural and operational feasibility. Resource feasibility is concerned with the types and amounts of resources required to complete process mapping initiatives and any
dependencies on these resources. Cultural feasibility involves considering the organisation culture and this may possibly clash with process mapping and process change. Cultural feasibility also considers the impact of the process mapping on the organisation. Operational feasibility asks whether current work practices and procedures support the system (Wikipedia, 2011). By exploring and determining the feasibility of process mapping to documenting health care processes, support is provided for the ongoing use and application of process mapping.

1.3 Acceptance

Acceptance is defined as the “act or process of accepting” (The American Heritage Dictionary of the English Language, 2000). For a person, object, process or situation to be accepted it must in the first instance gain the approval and support of society. Society must be at the disposition to tolerate or accept the person, object, process or situations. To achieve this, the person, object, process or situation must have a degree of acceptableness, that is a factor that makes it assured of being accepted, this in turn leads to society developing a belief in the person, object, process or situation and acknowledging/adopting it.

To improve the likelihood of acceptance, process maps need to consider and address the following. Firstly a clear, measurable, simple and concise definition of what is to be mapped needs to be established and agreed to (Shannon, 2005). Secondly the scope and objectives of the process need to be communicated clearly and widely across the organisation. This will avoid any unnecessary time and effort being spent convincing other players that the decisions being made are the right ones (Ensby, 1997). Additionally the organisations senior management need to demonstrate their on-going support of the process to the wider organisation (Shannon, 2005)
For the purpose of this study, the investigator limited the scope of the study to the acceptance and feasibility of process mapping within the CDHB environment. The study did not attempt to consider the wider implications of acceptance and feasibility of process mapping from either a national or international health perspective. The investigator acknowledges that process maps are not defined by this one tool alone but limited this study’s exploration of process maps to the format most widely recognised in the CDHB at the time of this study and the map produced by the Business Process Analyst (see Appendix 1). The study did not attempt to study or compare other process mapping tools used to document health care processes within the wider organisation/community.

1.4 Summary

In summary, the process map was first formally introduced to the CDHB in the Mental Health division as one component of the SPF. Today it is widely applied across the CDHB and is used in a variety of contexts, to systematically document the steps, activities and time required to complete a task. In short, a process map provides a graphical representation of a process and depicts this process using symbols and arrows. This study aims to examine the feasibility and acceptance of process mapping in the CDHB. Feasibility is seen as that which is ‘do-able’ and is likely to produce a logical outcome, while acceptance is seen to be achieved when the object of concern gains the approval of society. The following chapter considers and discusses process maps, process mapping and processes in greater detail.
2 Literature Review –

“Process Mapping helps you look at the forest. Then at how the trees are lining up. And finally you can see the leaves”

Petrovich (cited in Adams, 2000)

2.1 Introduction

This chapter defines and expands on the key terms of the study: process, process maps and process mapping. It identifies and discusses the various types of process maps that exist and presents the process of documenting a process map. The chapter outlines the anticipated outcomes that a process map provides to the user. Potential issues around the feasibility of using process maps are discussed in detail; this includes the benefits and limitations that arise from the use of process maps. Where process maps fit, as one of the tools associated with process improvement, is identified and discussed. Finally the chapter defines process “buy-in” and “ownership” and outlines the significance that these two concepts have regarding whether or not process maps will be accepted by the process owners and those with a vested interest in the process.

2.2 Process mapping

Process mapping is a systematic approach utilised to document a task, it focuses on the steps, activities and time required to complete the task, and it represents this in a visual diagram called a process map (Anonymous, 1999). Dictionary.com (2009) define a process map as a “Graphical representation of the sequence of steps or tasks (workflow) constituting a process from raw materials through to the finished product”. This representation of a process has been
found to be especially helpful in visualising and quantifying the process (Anonymous, 1999). Process maps have the ability to capture and represent how a process can be completed by different functions and illustrate the key interactions between those functions while highlighting any activity performed in parallel (Savory and Olson, 2001). Much like a peeling away of layers of an onion, process mapping is able to describe a process in various levels of detail (Savory and Olson, 2001). Therefore providing an opportunity to look beyond the functional activity and rediscover the core process (Savory and Olson, 2001). A process map achieves this by providing a uncomplicated, quick and effective picture of specific activities that occur within a given process (Savory and Olson, 2001).

Process maps are presented as a series of geometric figures connected by lines and arrowheads to show the flow of activity from beginning to end (ReVelle, 2003), describing what, when and who is involved. Process maps can be short or long and simple or complex in nature (National Health Service (NHS) Modernisation Agency, 2002; Pfred, 1996). Process maps can be used to reveal the process, identify the root of the problems and show how the work is currently completed. This is achieved by providing a snapshot in time of a process, showing a combination of function, steps, inputs and outputs that the organisation uses to provide value to its customer (Staccini et al., 2005). The significance of this visual picture is in its ability to be applied to analysing the process or particular activities within the process (Selander and Cross, 1999). It attempts to provide an understanding of how any given organisation process functions. This occurs through a facilitated interview, documenting what is understood from that derived during the interview and validating this understanding with all involved in the process (Keller and Jacka, 1999; Merrill,
1997). The key construct of process mapping is to capture and represent knowledge about a process using boxes and arrows (Adams, 2000).

A variety of different charting techniques exist (refer to Appendix 2). These include operations process charts, flow process charts, man and machine process charts, two-handed process charts and cross functional charts (that is, a swim lane flow chart which details the what, when, where and who) (Paradiso, 2003). The information presented in a process map consists of many layers, beginning with the most generalised information and leading to the more specific detail of the process (Keller and Jacka, 1999).

There are four identified types of process maps (refer to Appendix 3): block diagram, standard flow chart, functional flow chart and geographic flow chart (McEvoy, 2004). The block diagram is the simplest form of a process map, depicting linear processes, such as how an expense claim is processed. The standard flow chart documents the process in greater detail and includes a breakdown of process steps and their inter-relationships. Functional flow charts demonstrate the movement between different stages of the process and are often used to understand how “time” influences the process. A geographical flowchart documents a process that occurs across different locations (McEvoy, 2004).

2.3 Process

In simple terms, a ‘process’ can best be described as a sequential series of connected steps, activities or actions which take an output (i.e. information or material produced by or resulting from the activity), add value to the output therefore achieving a given product, service or outcome for a customer (Anjard, 1998; NHS Modernisation Agency, 2002; Paradiso 2003; Savory and Olson, 2001). A
process includes a beginning and end point, a purpose, rules governing the
standard or quality of inputs throughout the process and is usually linked to other
processes. A process involves activity, and it is this activity that enables a business
to organise and draw on its human, technological and infrastructure resources to
create outputs to accomplish their goals (Melnyk and Christensen, 2000; Paradiso,
2003). Processes can be short and simple or long and complex in nature (NHS
Modernisation Agency, 2002).

Processes are largely what define an organisation (Jackson, 2004; Melnyk and
Christensen, 2000). In any given organisation there is constant change and
development (Jackson, 2004). Processes often evolve as the organisation grows;
sometimes keeping pace with this evolution, while at other times becoming
overwhelmed by the sheer size of organisational growth (Quality Management
and Training Ltd, 2004). As the organisation evolves, knowledge and ownership of
the processes often becomes buried within a complex network of people and
systems. The constant and relentless drive to improve customer service, increase
cost efficiencies, speed up production output and conform to changing regulations,
often pushes the systems, people and processes to breaking point (Anjard, 1998;
“Process Mapping,” 2002). This scenario is particularly true of many government
departments that exist amid a constant cycle of change (Jackson, 2004).

Historically, the processes of an organisation have been left undocumented and
were verified subjectively through observation (Shannon, 2005). With the growing
concern for limiting organisational inefficiencies and improving effectiveness,
organisations have turned their attention to process mapping (Melnyk and
Christensen, 2000). The processes of an organisation shape the customers view of
that organisation and become critical to its ability to successfully seize and
maintain a competitive advantage (Anjard, 1998; Booth 1995). Rummler and
Brache (cited in Melnyk and Christensen, 2000, p.61) have stressed that “an organisation is only as effective as its processes”. Many organisations have struggled to ensure that the development of their processes remain consistent with the development of the business. This inability to evolve the organisation and its processes simultaneously has lead to the situation where processes have become complex and inefficient. Further compounding the issues facing the organisation is a lack of ownership and responsibility for the process (Quality Management and Training Ltd, 2004). Under these circumstances, it becomes increasing difficult for the organisation to control and manage all the tasks that are involved in a process, from start to finish (Quality Management and Training Ltd, 2004).

Typically, research shows that there are between five and twenty major processes which encompass the activity of any given organisation (Booth, 1995). Each process is enmeshed with other one in the organisation. This enmeshment is essential for the functioning of the organisation, however it is at this point that organisation bottlenecks and constraints are often experienced (Jackson, 2004; Melnyk and Christensen, 2000). While it is recognised that processes must cross-cut each other, the organisation must still have the ability to understand its processes. This understanding can be achieved by applying boundaries to each of its processes to clearly show where one process starts and ends, in relation to the next process (Keller and Jacka, 1999). Once the boundaries are in place, or have been defined, the organisation is in a better position to understand the links between each of its processes and identify the appropriate process owner and specify parameters for which the process owner will be responsible (Booth, 1995).

Four variations to any organisation process have been identified. The first is the process that is described in the organisation’s manual, the second is the process that everyone within the organisation believes exists, the third is the actual process
that exists and the final variant is the process that should exist (Melnyk and Christensen, 2000).

It is widely accepted that humans have an extraordinary talent for making things complex (Collins, 1997). This is particularly true of the interaction between humans and processes. The result of this interaction is the phenomenon referred to as “process complexity” (Collins, 1997). Hewlett Packard defines the phenomenon of process complexity as “extra process steps that are required to deal with external errors or extra process steps to recover from errors in the process or internal errors” (cited in Collins, 1997, p.24). Businesses need to be in the position to re-think, revise, add, drop, combine steps or change the structure in which the process is carried out (Collins, 1997; Melnyk and Christensen, 2000).

2.4 What process mapping provides

“There are many ways to learn about the systems we work within this includes process mapping” (Barach and Johnson, 2006). Process mapping is able to delineate key processes from the perspective of how the individual interacts with the system. Process mapping provides an overview of the complete process. In its simplest form it provides the user with a visual diagram that combines inputs (information or material used to produce the output of an activity), actions and outputs and shows how these factors are linked (Keller and Jacka, 1999; Patton, 2002). This kind of visual diagram avoids unnecessary complexity and presents complex work designs in a manageable manner. At the same time the process map is able to provide clarity and insight into these complex work designs, by showing exactly what is happening within a process and questions the assumptions on which it is based (Collins, 1997; Pfred, 1996). This leads not only to problem identification but pinpoints the specific location and the root cause of the problem.
A process map also illustrates any bottlenecks that occur within the process (Anjard, 1998; iSixSigma, 2004; McEvoy, 2004; ReVelle, 2003). A process map is able to illustrate how complicated the process can be for those who are involved in it. Process maps provide a key starting point for enhancement and improvements to the way in which the process is organised and performed (process redesign), this is accomplished by identifying aspects of the process that will show the most improvement if changed or modified (Denton, 1995; Dolan, 2003; Patton, 2002; Quality Management and Training Ltd, 2004).

2.5 Process improvement

Goldratt describes the overall business goal of process improvement as the ability “to make money now and to make more in the future” (cited in Shannon, 2005, p.3). This process of improving and changing business processes needs a clearly identified incentive to be successful (Shannon, 2005). Identifying how any given process operates is the essential element in identifying opportunities for improvement within an organisation (Savory and Olson, 2001). The likelihood of success can be improved by developing a measurable definition of the processes that are to be improved and communicating the objectives and scope of the improvement initiative to all levels of the organisation (Shannon, 2005).

Process mapping is a well known technique within the business community that creates a common vision and shared language for improved business results and places emphasis squarely on the customer (Keller and Jacka, 1999) (Webb, 2000). Goals of process mapping include decreasing customer frustration, decreasing organisation expenses and increasing product/service quality (Savory and Olson, 2001). It is a simple exercise that puts down on paper the exact work flow of an organisation, demonstrates how value is added, identifies more efficient ways to get from “point a” to “point b” and identifies the area(s) in which to begin to make
improvements that will have the biggest impact (Lurz, 1998; NHS Modernisation Agency, 2002). Process mapping provides organisations with the tools necessary to exceed customer expectations and to achieve company objectives. However, before an organisation can determine if it has achieved its objectives, it requires a full understanding of the relevant processes involved (Anjard, 1998; Keller and Jacka, 1999).

Conventional wisdom recognises that process improvement is a pre-requisite towards decreasing organisational costs and simultaneously improving the overall productivity of the organisation (Pfred, 1996). Process improvement initiatives and the resultant changes can be dramatic (Adams, 2000), however, evidence exists which suggests that process improvement initiatives have been less productive than originally claimed (Collins, 1997). One University of Texas study found that between 50 and 70 percent of process improvement attempts came up short of their original goals (Pfred, 1996). Other studies identified that managers often lack an understanding of organisation processes, the ability to successfully manage the processes and implement process improvement activities (Collins, 1997).

Process mapping is an underused but important tool in process improvement (Paradiso, 2003). It can be utilised to identify opportunities for improvement and promotes continuous process improvement through in-depth analysis of current process operation. This in-depth analysis indicates what works well versus what requires improvement (Welch, 2002). Documenting key processes is one of the most useful tools for directing and organising an improvement effort. Once these generic processes have been mapped, they can be used as an improvement tool (Collins, 1997; Savory and Olson, 2001). This means of utilising data is simple and allows the organisation to improve decision making on an ongoing basis by doing away with non-value adding activities (Anjard, 1998; Collins, 1997; Savory and
Olson, 2001; Shannon, 2005). The use of process maps to facilitate continuous improvement forces the obsession with outcomes to be abandoned, replaced instead with a focus on processes which prompt new ways of thinking about how work is completed (Anjard, 1998).

The key aim of the quality movement is to eliminate waste through improvement cycles, which focus on process evaluation, simplification, redesign or integration into existing organisation processes (Collins, 1997). The process map visually identifies the breakdowns, inefficiencies, bottlenecks and unproductive utilisation of resources (Keller and Jacka, 1999; Patton, 2002). The thoughtful and objective analysis of processes can have an extraordinary impact on the outcome of the process review (Keller and Jacka, 1999).

### 2.6 Producing a process map

The first step of process mapping is to identify the goal/s driving the process review. This is followed by clearly identifying and defining the process or sub-process under review (i.e. “what’s in and what’s out”) (Savory and Olson, 2001). The purpose of the process review will determine the breadth and depth at which process details must be analysed (“as–is” or the “to-be”). The “as–is” process refers to what currently occurs and is used as the beginning point to look at what areas should be improved while establishing improvement targets (Savory and Olson, 2001). An “as-is” map details the process in its current incarnation. Documenting the “as-is” process is typically lengthy as it involves the classification of process steps and identifying illogical, missing or redundant steps. The “as – is” is a critical step in problem conceptualisation and only after consensus has been reached can attempts be made on the “to-be” process (Fiore and Schooler, 2004). The “to-be” process can be conceptualised as the ideal future process or “should be” process (Fiore and Schooler, 2004; Savory and Olson, 2001).
Process mapping begins with the identification of a trigger (refer to Appendix 1 for illustration of process shapes and symbols). Once this has been identified, the flow or sequence of steps and/or activities that is required to complete a process task is documented (Anonymous, 1999). The process map also identifies the people and positions involved in completing the step and/or activities (ReVelle, 2003). A process map initially analyses the process from a high level perspective/overview prior to drilling down to look at the specific procedure detail (Keller and Jacka, 1999; Patton, 2002). Process maps need to capture enough detail to clearly show the process inputs, outputs, process enablers and key decision points. Capturing the right level of detail ensures that the critical elements of the process are reflected within the process map (Paradiso, 2003). The identification of the key decision points tends to be one of the most difficult aspects of the process to capture (Paradiso, 2003). Those commonly found tend to be the “mental steps” that occur within an individual and may result in process variation depending on which individual at any given time is completing that aspect of the process (Paradiso, 2003).

One critical factor to the success of process mapping is the facilitation process (Savory and Olson, 2001). Facilitated process mapping follows a predefined process which begins with the selection of a working group. Various factors are considered when selecting the working group these include: that the individual has some pre-existing knowledge of the process; credibility and the mandate of their work area to serve as a spokesperson; the ability to comprehend the bigger picture; is creative; has high energy level; is available to attend the majority of meetings and perceives the experience as a reward rather than a chore (Anjard, 1998; Savory and Olson, 2001). Along with the selection of the team, a framework is developed within which the team is to function. This stage requires the support
of management (Anjard, 1998). The key to successful process mapping is to customise the sessions to include people with multiple functions and disciplines (Keller and Jacka, 1999). This approach will ensure that the important aspect of client “buy-in” and “ownership” is achieved and that the final product is in fact a true reflection of what been documented (Keller and Jacka, 1999).

Process mapping is generally facilitated by an outsider to the group. It is this individual’s responsibility to elicit information related to the process by appropriately probing the group (Paradiso, 2003). The facilitator aims to capture sufficient detail to accurately represent the process steps, key decision points and pertinent information related to the process without using an excessive amount of words (Paradiso, 2003; Savory and Olson, 2001). Initial investigation of the process should be broad and as understanding develops, the facilitator should dig deeper to create more complex sub-flowcharts to illustrate the process (Keller and Jacka, 1999). After the meeting, the described process is documented using a specific software charting tool (e.g. VISIO, software used to chart process map in Appendix 1). This is then circulated to the group for consideration. The documenting process is lengthy and 100 percent accuracy is rarely achieved on the first attempt (Savory and Olson, 2001). The group then meet again and present their feedback regarding the process map. The facilitator then incorporates the feedback into the process map and returns it to the group for sign-off (Collins, 1997; Ensby, 1997; Paradiso, 2003).

Figure 2 outlines the process involved in completing a process map
2.7 Benefits

The major benefit of process mapping is that it illustrates the essential details of a process in a way that written procedures cannot. When process maps are well constructed they replace many pages of words (Paradiso, 2003). The key benefit is thus the visualisation of the process. This visual representation allows people to analyse and agree on efficient routes for improving the process and helps illustrate factors from the process which need to be eliminated (Denton, 1995). It models the relationships between activities, people and resources while identifying problems such as organisational bottlenecks and unproductive duplication of work (McEvoy,
It aids problem-solving and has the ability to assist with increasing the efficiency of the service delivered by developing and testing new ways of working (McEvoy, 2004). Therefore process maps are only of benefit when they are easily understood and not too detailed in content. They should provide a reader, who is unfamiliar with the process, a clear understanding of the process referred to in the process map after reviewing the map (Webb, 2000).

The use of process maps provides organisations with the means to easily identify the main sequence of activities, clarifying the critical connections across the organisation and identifying how core organisation processes are interrelated and affect one another. Additionally it benefits the organisation with its ability to create benchmark standards for the systems/processes (“Process Mapping,” 2002). Process mapping has also been proven to be an effective method in decreasing process cycle time (that is, the time it takes to complete the outlined process) (Denton, 1995; Merrill, 1997). The increased speed comes from identifying what is actually happening in a process, examining the routines, discussing and debating these routines and identifying opportunities for improvement. Improvements are achieved by eliminating, simplifying or combining processes, people, products and/or services (Denton, 1995).

Cross-functional communication within an organisation can also be improved as a result of process mapping. The process maps provide employees with the language for analysing and communicating their understanding of workflow, this provides employees with the opportunity to be involved in a collaborative process improvement exercise and contribute to encouraging ongoing collaborative problem-solving and decision-making (Paradiso, 2003; Pfred, 1996; Savory and Olson, 2001). Therefore process mapping can be seen to create an environment in which diverse teams can share their knowledge in a way that promotes
performance and teamwork. By allowing all team members to contribute their unique knowledge base, the process map is fleshed out as no-one knows all aspects of the process. At best, they have an incomplete knowledge and, at worst, an inaccurate representation of the process (Fiore and Schooler, 2004).

One of the ultimate benefits is that successful process mapping initiatives can create a culture of partnership between the business needs and customer needs (“Process Mapping,” 2002). It is a useful way of gaining a better understanding about the customer and their expectations. Many organisations (e.g. manufacturing industry and health) now involve customers directly in process mapping sessions, incorporating their feedback into the end product, or run the end product past the customer for confirmation with them (Savory and Olson, 2001). Additionally process maps benefit the orientation/training of new employees (Keller and Jacka, 1999). As an orientation tool, they provide a two-fold purpose of teaching the new employee about the overall operation of the organisation and provide an explanation around their role and how it interrelates to other roles within the organisation (Keller and Jacka, 1999).

2.8 Limitations

Process mapping improvement initiatives may fail for many reasons. These include: failing to accurately estimate the investment that people have in the existing process; underestimating the impact of the proposed process changes and the resulting anxiety; overlooking the existing processes by failing to develop a good baseline understanding of existing processes; selecting the wrong process to re-engineer; not realising, and providing for the dynamic nature of processes, and the lack of clear project objectives or the inability to articulate identified project objectives (Vollmer and Phillips, 2000).
An additional limitation is the lack of process “ownership”. This occurs when the facilitator and/or organisation fail to involve the appropriate people in the process. The key to the success of process mapping, is the involvement of the whole organisation not just its management (Dolan, 2003). Process mapping best succeeds when teams are comprised of individuals with a vested interest in the project. This should include people who have knowledge of the process, are involved in the process and represent different levels of the organisation (Savory and Olson, 2001). If all strata of the organisation are engaged, process mapping will assist the organisation to determine problems and identify solutions (Webb, 2000). By focusing the exercise on the opportunity to identify areas to decrease costs, rather than on adding value to the output or service, may result in a lack acceptance and buy-in towards the process (Melnyk and Christensen, 2000).

A lack of urgency in completing the process documentation will cause people to lose interest and enthusiasm for the process, attendances at meetings may become erratic and gradually cease all together and the project may go unfinished. Finally, by over-complicating the process, or failing to accurately capture the process in an easy to follow/understand manner, quickly leads to shelving process mapping initiatives for good (Collins, 1997; Melnyk and Christensen, 2000).

One of the more traditional problems encountered with process mapping is how to document the “how to” processes (Vollmer and Phillips, 2000). Documenting the “as-is” (current) processes can be achieved with a reasonable degree of ease (Vollmer and Phillips, 2000). However, if reaching group consensus on the areas to be changed/improved and enhanced is a significant challenge, the process of then accurately capturing/representing a yet to be instigated process in a process map, is monumental (Selander and Cross, 1999; Vollmer and Phillips, 2000).
It is important that process maps are viewed in the correct context (Staccini et al., 2005). A process map can help the user develop an understanding of a given process (Staccini et al., 2005). This understanding then enables the user to successfully negotiate the process. Users of process maps need to exercise a degree of caution when applying the process maps to their workplaces (Staccini et al., 2005). It is not possible to capture every possible scenario in a process map and the user should demonstrate an awareness of this. The most successful approach to capture the process accurately lies in involving all relevant parties in the documentation, although it will still remain impossible to present every scenario in the one process map (Paradiso, 2003; Savory and Olson, 2001; Staccini et al., 2005).

A process map should not be considered as a means to an end, it provides users with a way through the process, reveals any process constraints/bottlenecks and shows current work practices. When a process map is placed in context it can only provide a “snap-shot” of time at that given moment (Staccini et al., 2005).

Lastly, for many process mapping may just be considered to be another fad. At completion of the process mapping the possibility exists that participants/process owners will then move onto something more pressing and the process maps will sit unutilised on a shelf while employees complain that people don't have any understanding of correct process (Ensby, 1997; Vollmer and Phillips, 2000). Employees who experience this often have a reluctance to engage in a process that they believe is a waste of their time (Vollmer and Phillips, 2000). If people believe this to be true, they are less likely to engage fully with the process, having decided that the process maps will not add any long term value (Collins, 1997).
2.9 Buy in

Facilitating organisation wide buy-in is also essential if the process is to succeed (Pfred, 1996). It is recommended that a meeting or meetings are held across the whole organisation to inform all participating departments and individuals of the existence and purpose of the process mapping activity (Pfred, 1996). An organisational communication strategy is critical, as it ensures all individuals know the nature of the exercise and should minimise non-acceptance of the changes in the future (Anonymous, 1999). Proposed change often results in people questioning the need for change and resisting any of the changes proposed, whether or not the changes directly or indirectly impact on them (Pfred, 1996). This situation can be avoided if attempts are made to ensure that the people concerned feel that they have a vested interest in the change process (Pfred, 1996). Without this vested interest, no “buy-in” will be achieved and the proposed change will not succeed (Pfred, 1996). One critical factor for success is receiving “buy-in” from the people who design, facilitate and implement the change process (Pfred, 1996).

To ensure that buy-in is achieved, it is crucial to engage and talk with front-line workers from the start of the process mapping exercise (Adams, 2000). These workers can hold the key to describing what works currently from what doesn’t (Pfred, 1996). Utilising this kind of team approach towards process mapping is vastly better than adopting a one-on-one approach, as it creates a sense of partnership between the organisation and its workers and encourages each area of the organisation to look outside its own silo and consider the process from an organisation perspective (Pfred, 1996). Other team members, who do not have the opportunity to participate in the facilitated process mapping sessions, need to be provided with access to the documented process maps and actively encouraged to provide their feedback. Encouraging buy-in from a broader group
than the one charged with the task of documenting the process maps will produce immediate and lasting benefits to the whole process (Pfred, 1996).

Another factor in the process of developing buy-in is keeping the process simple and transparent (this ensures that everybody is able to understand the process and see clearly how the results have been arrived at). Choosing to keep the exercise simple and transparent makes obtaining the “buy-in” more straightforward, as people will be presented with the opportunity to discuss their assumptions and gain an understanding of the whole process, based on mutual agreement and collaboration rather than having an unfocused debate based on opinion and rank (Shannon, 2005). The ability to reach mutual agreement around the organisation’s processes, achieved by having buy-in from the entire organisation, can make it clearer to identify where efforts around process improvement should be concentrated and reach agreement on implementing these process improvement initiatives (Collins, 1997). The ability to work problems out across the organisation will also increase the buy-in towards the process. People are more likely to accept the concept of process mapping as a process improvement tool and therefore have a better developed understanding of the usefulness of process improvement tools (Ensby, 1997).

2.10 Ownership

Process ownership ensures that all people in the organisation clearly understand which processes they are responsible for (Merrill, 1997). Over half of any organisation’s processes have been identified as not having clear ownership. Without clear ownership, it has been found that communication channels break down, agreement is not met on their requirements, and without agreement the organisation cannot deliver a quality output or service (Merrill, 1997). Process mapping has been successfully used as a tool to establish process ownership
throughout all levels of an organisation by identifying who the most appropriate individual to own the process is (e.g. manager, team leader, shop assistant, customer, supplier) (Merrill, 1997).

Process mapping is at the heart of empowerment (Lurz, 1998). It assists with determining process ownership, through the critical stages of establishing process ownership, identifying customers and suppliers, and agreeing on the business requirements. The documented process map becomes an agreement between each employee and the company on how to do a good job (Lurz, 1998). Once ownership is established between the customer and supplier, then they can start to agree on their mutual requirements.

Broad based participation from all levels of the organisation is critical in developing process ownership. A wide representation adds new ideas to the mix and identifies previously unknown blind spots (Pfred, 1996). By providing staff with the opportunity to critically analyse and enhance processes organisations, are ensuring that their staff is better equipped to deliver the highest level of service or output to its customers (Keller and Jacka, 1999).

2.11 Summary

In summary a variety of charting techniques exist that present a process in a graphical representation. This process map utilises a series of geometric figures connected by lines and arrowheads to show the flow of activity from process beginning to end. This graphical representation is useful in quantifying and visualising a process. A process is a sequential series of connected steps which take an output, add value to this output and achieve a given outcome.
It has been identified that processes define an organisation. Process mapping enables an organisation to delineate key processes from the perspective of how an individual interacts with the system, providing clarity and insight into complex work designs. The ability to identify how any given process operates in an organisation is the essential element of process improvement. The major benefit of process mapping is that it illustrates the essential details of a process in a way that written procedures cannot. For process mapping initiatives to succeed, organisational “buy-in” is essential. To ensure this, it is crucial that all levels of the organisation are engaged in the activity. This broad based participation is seen as critical in developing process “ownership”.

The following chapter describes the evolution of process mapping from the manufacturing and services industries to its utilisation in a health setting.
3  Process Mapping in Health

3.1  Introduction

This chapter introduces process mapping in a health setting. It outlines the origins of process mapping in the business community and proceeds to discuss how the tool has evolved and is now utilised by the health sector. The application of process mapping to date in health is described in detail and highlights some of the benefits and drawbacks that have been identified from applying this tool to this setting. Finally the chapter provides an historical overview of the adoption of process mapping in the local setting (CDHB), by detailing its introduction and discussing how it has evolved through to its current application.

3.2  Process mapping applied to Health

Continuous quality management programmes, process orientation and re-engineering of patient care activities are currently held to be relevant and powerful approaches for managing and upgrading healthcare organisations (Staccini et al., 2005). It is expected that staff are able to identify, define, implement and evaluate existing or new care pathways (Staccini et al., 2005). Process mapping can be used in a variety of performance improvement applications and aims to facilitate communication via easy to understand language and defined boundaries (Staccini et al., 2005). Process maps document in terms of problems as opposed to solutions in an easy to modify knowledge structure. They can illustrate supplier-customer relationships, functions, steps, and tasks through a series of maps (Staccini et al., 2005).
Process mapping was originally developed for use in the manufacturing and service industries and has only recently been adopted by health care providers to develop a better understanding of organisation systems and processes (McEvoy, 2004). In health care process mapping can be conceptualised as an alternative form of audit that looks at the system/s of care through the patient’s eyes and in doing so develops a picture of organisational and treatment processes that contribute to any given patient’s experiences (McEvoy, 2004). Historically, within the health sector, the agenda of the organisation rather than that of the patient needs is often at the centre of any process. It has been suggested that this inhibited the quality of care delivered and disempowered the patient (Welch, 2002). Process mapping was seen to offer the opportunity to look for ways of improving the patient experience, the care they receive, and ultimately contributing to a reduction in the length of patients’ journey (Lees and Ferreday, 2003). Process mapping was seen as a means of contributing to increased patient safety and satisfaction, reduction in waiting times, reduction in adverse events, and as a means to cut costs and non value added steps from a process (Staccini et al., 2005). It was believed that process mapping was an effective, standardised approach that would decrease process variability and assist in facilitating change in clinical practice while bringing a holistic perspective to patient care (Lees and Ferreday, 2003; Welch, 2002).

The health sector confronts a range of problems that are often associated with complex and challenging systems, not least of which is the challenging effect of constant change to the systems (Barach and Johnson, 2006). Many consider that systems equate to “well oiled machines”; however in the context of health, the users of the systems (patients, staff and management) are often confronted with cumbersome, unfriendly and unwieldy systems (Barach and Johnson, 2006). In fact a healthcare system has been likened to a complex adaptive system. Where a collection of individuals whose actions can be unpredictable, involve unclear
organisational boundaries, a membership that is constantly changing and all of the actions are interconnected (Barach and Johnson, 2006). Process mapping provides the health system with a means to represent this complex and dynamic nature. It has been identified that process mapping within the health sector has the potential ability to promote learning, test hypothesis, facilitate decision making and assist with policy formulation (Barach and Johnson, 2006).

To date, the emphasis on process mapping in health care delivery has been, on understanding the patients’ experience at various stages of his/her journey (Quality Management and Training Ltd., 2004). This emphasis that not any one individual is to blame and instead provides a clear account of what is happening, how it is happening and who is responsible for completing it (Quality Management and Training Ltd., 2004). Examples of this include the NHS modernisation projects in the United Kingdom (established in 2001). It was mandated with developing an understanding of clinical effectiveness, against high workloads, and was to establish and implement strategies that would improve service delivery and disseminate best practice guidelines (McEvoy, 2004; Welch, 2002). The goal of these process improvement efforts was to identify ways to improve systems amongst front-line staff. Significant emphasis was placed on avoiding the creation of a culture of blame within the organisation. Key to this has been the engagement of with front-line staff in an attempt to eliminate/avoid an “us versus them” dynamic (McEvoy, 2004).

Another example is the Flinders Medical Centre in Australia. The Centre instigated a Lean Thinking Model to their Emergency Department that they adapted from the NHS Moderation projects (King et al., 2006). Process mapping was utilised as one of the key components in this review. Lean thinking is an approach which has its origins in industry and was established to assist with distinguishing processes from
operations (King et al., 2006). The key element to this approach is that instead of starting from a solution based approach, you begin by developing a detailed understanding of your processes, ensuring that emphasis is placed on the “real life” functioning of the processes as opposed to the intended function. This approach identifies the factors that either impede or facilitate the desired process outcome (King et al., 2006).

In the example from the Flinders Medical Centre process mapping was used in the first case to describe existing flow and patient care processes (King et al., 2006). It clearly illustrated the factors which contributed to congestion within the Emergency Department. Process mapping was also found to highlight the degree of process complexity that existed within the departments care processes and illustrated that good patient care outcomes were significantly more reliant on individuals rather than on following a consistently applied pre-designed process (King et al., 2006).

Health organisations have found it difficult to improve the existing quality of processes, largely due to a lack of an organisational overview of organisational process (Welch, 2002). Each service contains many different layers of process, including patient, communication, and administration processes (NHS Modernisation Agency, 2002). Efforts to improve processes have been complicated by the complexity of the organisational structure (Savory and Olson, 2001). The inefficiencies experienced within organisations are primarily due to inherent problems with processes, rather than lack of effort by individuals (Welch, 2002). To develop an overview of processes, health services instigated process mapping initiatives, such as previously seen in manufacturing and service industries (Welch, 2002). Patient processes have evolved over years and constitute many different layers (NHS Modernisation Agency, 2002). As the patient journeys through a health care episode, they encounter many health professionals who have their own
management structures, hierarchies, and philosophies of care. The combination of these influences has contributed to a fragmented approach of patient care (Welch, 2002). The traditional approach of making incremental changes to existing process has only achieved limited improvement. In contrast, process redesign questions basic assumptions, challenges the way that things have always done, and can bring about significant improvements (Welch, 2002).

By mapping the “as is” (current) process, services identify all relevant facets of process, including the start and end points of the process, the key stakeholders, the goals of that process, and the boundaries surrounding that process. This provides services with a baseline view of how that processes flows, its successes and its limitations, and sets out the benchmark for further improvements (Welch, 2002).

The documentation of a process map should involve a process of analysis, which aims to provide the service, with an in depth understanding, of the role that that particular process, has within the context of a larger group of processes (Welch, 2002). To date completed process maps have documented the processes adopted by staff/clinician from the point the patient arrives for a clinic appointment, or is admitted to a workplace, through to discharge from the service, with particular emphasis placed on which team member assumes what roles (Lees and Ferreday, 2003). This allows for analysis of the entire system of patient care, in terms of what happened at each stage of the patient’s journey, while keeping patients at the centre of the exercise (Welch, 2002).

Staff scepticism, when faced with the concept of process mapping a patient’s journey, is often initially high (Welch, 2002). Many perceive the process as yet another management idea, which is aimed at saving dollars, and will do little to improve patient care or work satisfaction. This initial scepticism often turns to
interest and engagement, as the mapping becomes viewed as a tool for improving services to patients and a commitment to change clinical practice (Welch, 2002). Process maps can be a powerful way for multi-disciplinary teams (MDT) to understand real problems from a patient’s perspective and in turn identify opportunities for improvement and is recognised as a key starting point for services to be developed around the needs of the patient (McEvoy, 2004; NHS Modernisation Agency, 2002). Along with providing an overview of the entire patient care process, and tangible end product for the MDT, process mapping may also create a culture of ownership, responsibility, and accountability within the MDT, through improving communication and clarifying the roles and responsibilities of each discipline (NHS Modernisation Agency, 2002; Welch, 2002). Process mapping in healthcare delivery should be viewed as a simple exercise that helps teams know where to start making improvements that will have the biggest impact for patients and staff (NHS Modernisation Agency, 2002).

The identified drawbacks of process mapping health care processes are largely dependent on its use. These drawbacks include overcoming the barriers to patient involvement; laying of blame; issues of capacity when planning new processes; and that staff concerns are taken seriously, not merely seen as passive resistance (McEvoy, 2004). The benefits of re-designed processes are unlikely to be realised if extra work and responsibilities are added to an already over stretched workforce. Critical success factors include the formation of a cohesive team (5-7 members) which has the backing of senior management, and ideally includes patient representation, along with a facilitator skilled in questioning the truth by asking the “dumb” questions and steering clear of internal politics (McEvoy, 2004).
3.3  Process Mapping in the Canterbury District Health Board

In 1995, the Mental Health Division (Christchurch) of Healthlink South Limited – one of New Zealand’s then Crown Health Enterprises, which provided health services to Canterbury and West Coast, developed and implemented the Service Provision Framework (SPF) (Health Information and Processes (HIAP), 2003). The SPF was originally developed and implemented in Christchurch by a Healthlink South Business System’s Analyst. They were responsible for eliciting and analyzing the business needs, through a process of identifying and validating problems, and proposing solutions/changes to business processes, policies, and information systems (Health Information and Processes (HIAP), 2003). The original intent was to ascertain exactly what services the Mental Health Division was providing to its clients and how these were provided (Health Information and Processes (HIAP), 2003). Since its introduction, similar processes have been implemented by Waikato and Otago District Health Boards. The original document continues to be used across numerous divisions within the Canterbury District Health Board and has been used as a template to document service provision for specialist South Island regionally delivered mental health services.

The SPF is a paper document consisting of nine sections that provides a structured format for analysing, defining, and auditing the internal patient care processes, and the standards to which this will occur (Health Information and Processes (HIAP), 2003). These standards relate largely to what happens, when it happens, and who is responsible for it. Clearly documenting the way services are provided and the associated standards provides a direct path towards achieving effective service delivery, and enables audit. The SPF has been instrumental in clarifying, reviewing, and minimising risk in service delivery, along with successfully integrating national Health and Disability Sector Standards and Mental Health
Standards, into patient care processes (Health Information and Processes (HIAP), 2003).

The SPF pays close attention to detail, often thought of by clinicians as “too hard” or “too boring” (Health Information and Processes, 2003). However it is pivotal in defining service delivery and ensures that standards for service delivery are translated into action. The SPF covers the following nine sections:

1. Issues
2. Clinical focus
3. Processes/standards
4. Interfaces
5. Clinical functioning
6. Orientation
7. Treatment guidelines
8. Documentation
9. Standards audit

The SPF dedicates a section to processes and standards, describing the workings of any given workplace. These processes and associated standards for the workplace are represented in a process map (Appendix 1). The process map most widely applied/utilised in the CDHB (Appendix 1), at the time of this study consisted of three columns: “process”, “tasks/standards” and “who” (see Figure 3). The “process” column outlines the major steps and questions involved in each step of any given process. The “standards/tasks” column specifies the tasks involved in each step and sets out standards regarding the timing of events, documentation required, etc. The “who” column sets standards as to the type/level/discipline required to carry out each step, as well as “who” applying to the person/s responsible for completing the task. The person/s documented under “who” may
delegate the task, however, it is accepted that the accountability remains with the documented person. For example, a SPF completed in a clinical setting would consider the processes of referral, assessment, treatment, review and discharge (Health Information and Processes, 2003).

The following example (figure 4) outlines the “Referral Process”. It explains how a process is mapped and created within the above mentioned format. The process is initiated by a “trigger”, i.e. a “referral received”. Working through the referral process, one would then document each step of the process in a new process box, e.g. “register referral”, “place referral on wait list” etc. These process steps are linked together with “connectors”, which clearly illustrate the path that the process follows. As the process steps are documented one may reach decision points in the process. A decision box will then result in two possible pathways, which will always lead to another process step or pre-defined process. To show that the process has been completed it is concluded with a “terminator”.

Alongside each process box is a corresponding standards/tasks box, with bullet-pointed actions that occur at any given point on the corresponding process. The person responsible for completing the actions is identified in the “who” column. The processes are documented by outside facilitators who work with a “working group”, which is considered to be representative of the team. These discussions
are then flowcharted into a process map - a process commonly referred to as process mapping.
<table>
<thead>
<tr>
<th>PROCESS</th>
<th>TASKS/ STANDARDS</th>
<th>WHO</th>
</tr>
</thead>
</table>
| Referral received | - Enter referral on Healthlinks.  
- Create Healthlinks Referral Screening Form.  
- Check referral against acceptance criteria.  
- Present referral within 5 working days to weekly MDT meeting.  
- Document on Rehabilitation Service interface meeting minutes.  
- Confirm consumer ethnicity.  
- Send letter acknowledging receipt of referral to referred within one week of receipt OR if referral does not meet criteria send letter acknowledging reasons for non acceptance if referral does not meet criteria. | Secretary, Change Nurse Manager |
| Register referral | - File referral in referral folder.  
- Place consumer on waiting list and Rehabilitation Service interface meeting minutes.  
- On arrival becomes available, prioritise consumer from waiting list following consultation with MDT meeting according to level of risk, mental health status, gender, consumer's needs/goals, availability of beds. | Charge Nurse Manager |
| Is there a wait list? | - Allocate assessor(s).  
- Invite Pukenga Akekai, as required.  
- Contact Unit to arrange assessment date and time.  
- Enclose unit specific brochure.  
- Send letter confirming assessment date and time to referer within one week of assessment allocation. | Charge Nurse Manager or delegate |
| Place on wait list | - Conduct assessment within 3 weeks of assessment allocation following the Tupuna Initial assessment format. | Secretary, Assessors |
| Arrange Assessment | - Present and discuss assessment at the next weekly clinical meeting.  
- Decide if consumer meets the acceptance criteria for treatment.  
- Advise the referring Charge Nurse Manager by phone.  
- Document outcome in interface meeting minutes.  
- Send decline letter to referred, as appropriate, within 1 week of assessment.  
- Document assessment on Healthlinks Psychiatric Assessment within 1 week of assessment.  
- Send copy of assessment to referred.  
- File referral and assessment documentation in the referred declined folder. | Multi-Disciplinary Team, Charge Nurse Manager, Assessors |
| Assessment | - Yes  
- No  
- Yes To next page | Adviser, Next page |
Since the introduction of the SPF in 1995, its use has extended across both clinical and non-clinical areas throughout the CDHB. The use of formalised process mapping has diversified across the organisation and is currently applied in a variety of situations. This includes being used to identify service delivery gaps and/or overlaps, to identify current processes (“as-is” process), using the “as-is” process as a benchmark to develop possible “to-be” processes, a quality improvement aid, and as an alternative to complex wordy documents.

Evidence available from overseas countries such as the United Kingdom, supports the validity of using process mapping in the health care setting. It has been shown to be beneficial for the patient, staff, and organisation, by enhancing the overall patient journey, improving patient flow, clarifying roles...
and responsibilities, and identifying service delivery short-falls or overlaps (King et al., 2006; Mc Evoy, 2004; NHS, 2002; Quality Management and Training Ltd., 2004; Welch, 2002). There has been no formalised review of the use of process mapping in the local health care setting. The impact of process mapping within the CDHB, to date, is largely anecdotal.

3.4 Summary

In summary process mapping was originally developed for use in the manufacturing and service industries and has recently been adopted by health care providers to develop a better understanding of organisation systems and processes. The health sector has found it difficult to improve the existing quality of processes. This is largely due to a lack of organisational overview. Process mapping provides the health sector with a tool to represent its complex and dynamic nature. It has been used to develop an understanding of the patients’ experiences of being involved in the health system. The drawbacks of such a tool are seen to be largely dependent on its application. In 1995, Healthlink South implemented the SPF and process maps were a core component of this document. Since the introduction of the SPF, the use of process mapping across the CDHB has diversified. The impact of using process mapping in the CDHB is largely anecdotal, with no formalised review of process mapping being undertaken.
4 Method

4.1 Introduction

This chapter outlines the study methodology. It introduces the sample set, including the subjects, the population from which they were selected and the rationale for the selection. It will outline the measuring instruments applied during the course of this study: a self-report questionnaire and semi-structured interviews, including development of, issues of validity and the rationale behind using these particular instruments. The procedure adopted to collect the data will be presented, along with justification for the approaches utilised. Ethical considerations are identified and strategies to manage any potential issues resulting from these will be outlined. Finally the methodologies that will be applied to the data analysis will be identified and discussed.

4.2 Subjects

The CDHB employs approximately 8000 staff across 16 sites. At the time of this study process mapping was well established in two divisions (“Mental Health” and “Older Persons Health” and had been recently introduced to a further two divisions (“Women's Health” and “Christchurch Public Hospital”), additionally there were a scattering of individuals from “Other” divisions who had been exposed to process mapping. There exists an underlying expectation across the “Mental Health” and “Older Persons Health” division that every employee would have first hand knowledge of a process map, however there is no evidence to either confirm or refute this. Given this expectation the possible sample population from these two divisions was approximately 2500. The potential combined sample population from “Women’s Health”, “Christchurch Public Hospital” and the “Other divisions was approx 80 (it is impossible to provide exact numbers, as numbers exposed to process mapping have not been recorded).
From the potential sample population of 2580, 130 participants were selected to participate in this study. The final sample size (5% of possible sample) was based around a number that had been identified as reasonable to manage, when the projects use of both quantitative and qualitative methodologies was taken into account and that would still provide sufficient data to complete meaningful analysis on. The “Mental Health” and “Older Persons Health” strata groups made up a greater proportion of the sample (73%); this approach was adopted due to the greater extent to which these two divisions had been exposed to process mapping in the CDHB. Each participant received a self-report questionnaire. These participants were selected from two distinct populations. The first sample population was the “facilitators”; that is, the people responsible for documenting the process maps. At the time of this study this role was predominantly completed by a Business Process Analyst from Information Services. All Business Process Analysts (n=7) who had facilitated process mapping sessions within the CDHB in the last 12 months were invited to participate. The second group (n=123) was pre-defined strata groups. Each one of the strata group was a defined on the basis that each group represented one of the four division: “Mental Health”, “Older Persons Health”, “Women’s Health”, “Christchurch Public Hospital”, and “Other” (a group compromising small numbers of CDHB employees from various other divisions within the organisation, where process mapping was only recently introduced) that had been involved with process mapping or had knowledge of the aforementioned mapping tool (Appendix 1). The strata groups consisted of the professional populations, such as nursing, allied health, midwifery, medical staff, management, and administration, that existed within that division. Inclusion criteria were established on the basis that prospective participants had to have had involvement or experience with documenting or using the previously described process map (Appendix 1). The use of pre-defined strata
groups provided the means to make comparisons between and across the
different professional groups and divisions.

Of the 130 participants who were sent the self-report questionnaire, sixty five
(n=65) completed and returned these. All sixty five participants formed the first
group in this study. Attached to the self-report questionnaire was an invitation
to participate in an interview to further explore the experiences of being
involved with and utilising process maps. People interested were asked to
complete the expression of interest form attached to the self-report
questionnaire and return it with the completed questionnaire (see Appendix 4).
Twenty two expressions of interest were received via this process. The twenty
two expressions of interest received represented all of the strata group and a
variety of professions. All had been directly involved with process mapping
initiatives in various capacities (e.g. facilitator, manager, quality coordinator,
team member). Seven participants were selected to form the second group of
participants for the study. Each participant underwent a one hour semi-
structured interview. The participants were randomly selected by an
independent third party. As all interested parties had experience with process
mapping it was considered that each one of the individuals would have
pertinent information to contribute to the process, as such a simple random
interview sampling technique was utilised to obtain a representative view of
process mapping across the CDHB and to allow for the greatest generalisation
of results. It is recognised that random samples (probability sample) provide a
representative view of the population (Reeves, 1992).

4.3 Measuring instrument

Data was collected from two sources; the first being a sixteen question self-
report questionnaire developed specifically for use in this project. The use of a
questionnaire was based on the inherent assumption, that by surveying a
representative sample of any given population with a standard set of questions, the answers could be collated and combined, with resultant feedback extrapolated to represent the views and/or attitudes of the whole population (Reaves, 1992). The questionnaire consisted of a combination of fixed yes/no responses, likert rating scales, and six open-ended questions (see Appendix 4). The questionnaire took approximately fifteen minutes to complete. Provision was made for the participants to add written comments following the fixed yes/no response questions and at the completion of the questionnaire. Open ended responses were included in an attempt to minimise respondents’ frustration of being forced to choose between two alternatives without having the opportunity to expand, elaborate or qualify their responses to the questions posed. While open-ended responses demanded more time of the respondents, they were seen as pivotal in providing the respondents with the opportunity to express their views, and as a means of generating themes for further exploration in the interviews (Reaves, 1992).

While a questionnaire has the advantage of easily sampling a large number of respondents, it also has associated limitations. The following associated limitations of questionnaires were addressed as part of the questionnaire development and pilot. These included defining the exact information required to address the study aims and objectives, making sure that the questions contributed to providing the required information, and correctly identifying the intended sample population so as to generate the information required – refer to the inclusion/exclusion criteria.

The issue of face validity was addressed during the development of the questionnaire, with it being piloted on an initial group of five participants. The pilot provided the opportunity to check that respondent’s responses indicated that they had interpreted the questions correctly. Along with completing the questionnaire respondents were asked to provide feedback on issues such as
question ambiguity, misleading/confusing questions, question bias and areas of potential improvement. Based on information and feedback generated during the pilot study, the questionnaire was modified as required prior to being distributed to the study population.

The second source of data was obtained from semi-structured interviews, 60 minutes in duration. Semi-structured interviews were chosen as a means of developing a greater understanding into the experiences of being involved with process mapping. This style of interview has been found to be of use when the area under construction is “new”, and the researcher is trying to develop a broader, more detailed understanding of the area of interest (Reaves, 1992). The use of semi-structured interviews provided some broad boundaries around the points of discussion whilst enabling the participants to share their experiences. The interviews were focused on developing an understanding of the feasibility of using process maps, the acceptance towards process mapping within the CDHB setting, the capability of process maps to document health care process, and any issues concerned with process mapping. As the interviews progressed and a clearer understanding of the area developed, subsequent interviews became more structured focusing on themes that were identified in the earlier interviews (Reaves, 1992).

In order to develop the semi-structured interview questions, themes were identified from the completed questionnaires by means of thematic analysis as outlined by Boyatzis (1998). The identified themes were generated inductively from raw qualitative information collated from the six open-ended questionnaire questions. Each interview was audio taped and subsequently transcribed verbatim. Thematic analysis was then used to analyse and interpret the raw data, by firstly identifying themes that emerged within the data, identifying patterns in the themes and labelling and providing a description/definition of this pattern (Boyatzis, 1998).
4.4 Procedure

Questionnaires were distributed utilising two approaches, stratified random sampling and purposive sampling. Questionnaires for the “facilitator” population were personally mailed to all Information Services Business Process Analysts (purposive sampling). The remaining questionnaires were randomly distributed across the selected strata groups (stratified random sampling), with the exception of the “Women’s Health” group which purposive sampled, as the Quality Co-ordinator specifically sent the questionnaire to all the individuals who had been involved with process mapping in the division. Professional Leaders (e.g. Occupational Therapy Professional Advisor) and/or Quality Co-ordinators from the selected divisions were approached and asked to randomly distribute the questionnaires across their divisions. The use of Professional Leaders and/or Quality Co-ordinators to distribute the questionnaires ensured that questionnaires were distributed to CDHB employees who had previous experience with process mapping. Further it was assumed that as the professional leaders and/or Quality Co-ordinators were a non-biased group that did not have a vested interest in the results of the study, the potential respondents would not be coerced into participating in the study. It needs to be acknowledged that some potential respondents may have felt a degree of pressure to participate having received the questionnaire directly from a senior staff member. By clearly outlining to respondents that participation was voluntary, via the written explanation of the study, and providing them with two possible return options attempts were made by the investigator to minimise this pressure. The overall coordination of the self-report questionnaire remained at all times throughout the responsibility of the principle investigator.
Each potential respondent received a written explanation of the study, any requirements that the study would impose on the respondent; an indication of the time required to complete the questionnaire; a consent form (which included an invitation to contact the Investigator to clarify any questions or concerns pertaining to the study); a questionnaire; and an addressed return envelope (see Appendix 4). Respondents were advised that participation in the study was voluntary and that they could withdraw at any point, participants were also advised that no form of payment would be offered as a result of participating in this study. Respondents were given the option of returning the completed questionnaires directly to the Investigator or to their designated Professional Leader or Quality Co-ordinator.

Of those respondents that returned expression of interest forms (n=22), a small number (n=7) were randomly selected to provide a more detailed account of their experience of using process mapping in health care delivery, within the Canterbury District Health Board environment. As previously discussed simple random interview sampling was utilised to obtain a representative view of process mapping across the CDHB and to allow for the greatest generalisation of results. Interviews were subsequently conducted over a five week period and entailed a one hour session at a venue of the interviewee’s selection, at a time that was mutually agreeable to the interviewee and investigator. The interviews were conducted by the principal investigator in a closed setting that included only the interviewee and investigator. The interviewees were provided with a verbal explanation of the interview process and verbal consent to participate was obtained. The voluntary nature of participation and right of withdrawal was verbally re-iterated prior to the interview (for a detailed discussion of ethical considerations, please refer to Ethical Considerations section). All seven interviews were audio taped and subsequently transcribed verbatim by the investigator.
4.5 Ethical Considerations

Ethical approval for this study was obtained from the University of Otago Ethics Committee. In the course of completing this piece of work, the investigator sought to adopt a culturally sensitive approach and respect and adhere to the principles of the Treaty of Waitangi. The investigator consulted with Te Kahui Pou Hauora Maori – the management group for the Maori Mental Health Services, as well as Te Korowai Atawhai within the Mental Health Division of the Canterbury District Health Board to, identify and address any potential cultural concerns that may occur during, or as a result of this study. Support for the study was received from Te Kahui Pou Hauora Maori by making cultural supervision available to the research team (Appendix 3). Further Te Korowai Atawhai were available to review/critique documentation arising from the project so as to ensure that cultural viewpoints were incorporated into the study.

The following key ethical considerations were identified and addressed during the duration of this study:

4.5.1 Power and Control

All possible attempts were made to ensure that no undue coercion was experienced by participants in this study. Concern around possible investigator coercion was of particular relevance to this study due to the investigator’s contact with many participants in their work capacity as a Business Process Analyst. The potential issue of the investigator having a power and control relationship with participants was addressed by the investigator obtaining informed consent of participants. It was reinforced to each participant that their participation in the study was voluntary and that they were free to participate or withdraw as they choose (Reaves, 1992). The purpose and expected outcomes of this study were clearly defined to each
participant from the outset of their involvement in the study, including the participant receiving an explanation that no financial incentive would be offered to participate in the study. The use of anonymously completed questionnaires addressed any potential bias that may have occurred given the possibility of a relationship between investigator and participant (for example, a number of participants were colleagues of the investigator).

4.5.2 Loss of anonymity

Anonymity is said to exist when the participant expects that no-one, not even the investigator, can identify their responses (Reaves, 1992). Total participant anonymity was not possible due to the adopted methodological framework, i.e. the component of the study that included the self-report questionnaire. However, where possible, anonymity was maintained as follows: all consent forms and expressions of interest were recorded on separate documents from the questionnaire (Appendix 4). Each interview participant was guaranteed their anonymity, to the extent that their identity remained known only to the investigator. The investigator undertook to notify a participant if there was any intent on behalf of the investigator to include any personal information that could potentially identify the participant. The participant would then be given the opportunity to have that information deleted at their request. Any data pertaining to a participant’s personal details has been stored in a secure setting, separate from the research data.

4.5.3 Informed Consent

Obtaining consent from each participant provided the investigator with a way of addressing the issues of participant anonymity and confidentiality (Reaves, 1992). Each participant was provided with a written explanation of the project; its aims and purpose; associated risks, and what, if any, information would be repeated and to whom (Reaves, 1992). Participants were invited to
contact the investigator to clarify any aspect of the process that may have impacted on their ability to complete the informed consent process.

Participants were asked to complete a separate written consent form that was attached to the questionnaire. Participants were asked to return the completed consent form with the questionnaire.

Participant consent for the interviews was verbal. Participants were provided with a verbal explanation of the project, the purpose of the interview, and what would be expected of them during the interview. Participants were then asked if they were happy to continue with the interview, and advised that by choosing to continue, they could still withdraw from the study at any stage of the interview. Throughout the study the researcher made every effort to fulfil the moral obligation of continually informing each participant of their right to withdraw from the study at any point, and reinforcing to the participant that having preceded to provide consent to participate that they were under no obligation to complete the research (Reaves, 1992).

4.5.4 Privacy and Confidentiality

The issue of confidentiality; that is, when the participant knows the potential exists for the investigator to identify them from data (e.g. interview transcripts), was pertinent to this study. All possible attempts to create an environment which respected each participants right to confidentiality was created by processes, such as obtaining written consent (see Informed Consent) and ensuring that personal information was not passed on to other participants or supervisors without the participants consent (Reaves, 1992). The principles of the Privacy Act (1993) were adhered to throughout the study, with specific attention being paid to protecting the participant’s identity and ensuring that in the case of the investigator knowing the participant’s identity, that it remained known only to the investigator. For example, personal identifiers were removed from interview transcripts prior to them being
viewed by the study supervisors. All attempts were made to ensure that no participant was identified in the completed write-up that would be available to the public.

4.5.5 The Security of the Storage of Data and Results

All data relating to this study, including computer back ups, audiotapes, files, and transcripts, has been stored securely by the investigator for the duration of this study, information stored electronically is password protected and all hard copy information (e.g. the completed questionnaires) is stored in a locked filing cabinet. Access to the data has only been available to the researcher and supervisors. The investigator intends to retain all data gathered during the course of this study for a period of ten years from the time of project completion. After this period data will be destroyed.

4.5.6 Expected use of data and results

The data gathered during this research is intended to be used for the sole purpose of examining the use of process mapping in health care delivery within the CDHB. There was no intention for it to be used in the measurement of service delivery outcomes. All participants have been offered the opportunity to view the completed work.

4.5.7 Avoid physical/mental harm

The investigator made every effort to ensure that the experience of participating in this research caused minimal stress, fear, or anxiety for the participants (Reaves, 1992). Participants were provided with clear explanations of what each stage of the study involved. Each participant freely consented to participate in the research, and the investigator re-iterated that all participants were free to withdraw from the study at any stage.
4.6 Data analysis

Data analysis was conducted from a both a quantitative and qualitative framework. The selection of both methodologies allowed for clear quantifying of measures and provision of a richer meaning and feeling. Quantitative data was analysed primarily from a descriptive perspective using Statistical Package for the Social Sciences (SPSS), analysing general ratings of satisfaction, comparison across strata groups, and between the same professional groups. The use of quantitative analysis allowed the investigator to focus on the intent that experiences are quantified (that is measured) prior to them being studied (Reaves, 1992).

Descriptive qualitative analysis was performed on the text of the transcribed interviews. Descriptive qualitative analysis involves the exploration of meaning that people attribute to experiences that they have lived (Reaves, 1992), and provides a means for seeing and making sense of people, interactions, situations, organisation’s, or different cultures. As discussed by Denzin and Lincoln (2003), themes were identified before the interviews took place (from the qualitative material gathered from the six open ended questions in the questionnaire), during the interviews themselves, and after the interviews were completed (during the analysis of the transcribed interviews). Boyatzis (1998), identified five elements that should exist within any thematic code. These are a label (name); a definition of what the theme is concerned with; a description of how and when the theme occurs; a description of any qualifications or exclusions to the identification of the theme; and finally, examples of the theme - both positive and negative to eliminate possible confusion when looking for the theme.

Thematic analysis has been described as a process that moves the investigator through the following three phases of inquiry: seeing or recognising an important moment, then seeing this moment as something (encoding), and in
Thematic analysis performed on the interview data entailed identifying themes that emerged within the data, noting the repetition of these themes across the interview transcripts, classifying these themes as a pattern, and finally labelling and providing a description/definition of this pattern (Boyatzis, 1998).

Denzin and Lincoln (2003), describe analytic induction as a formal method of building up causal explanations of phenomena from a close examination of cases. It involves defining the phenomenon that requires explanation; then proposing an explanation; before examining a separate case to see if the explanation fits, and if it does then the process is repeated.

The following stages were undertaken in developing a code inductively (data driven code). Firstly, issues of sampling and design were decided. This study utilised a hybrid approach to its inductive reasoning. A hybrid approach was selected since the study only studied one organisation. The hybrid approach follows all steps of developing codes inductively, except it does not compare and contrast across subsamples. Instead it relies on the investigators’ use of his/her own theories or prior research as a guide for articulation of meaningful themes. The second stage involved the reduction of the raw information. It is an inherent assumption of the coding process that data reduction, not proliferation, will occur (Denzin & Lincoln, 2003). Reducing the raw information occurred by a process of reading and re-reading each of the interview transcripts, from which a synopsis was created. From this synopsis, themes were identified via a process of comparing transcript summaries so as to identify similarities that were repeated across the sample. These themes were then applied to create the thematic code. Finally, by applying the code across the remaining raw information validity was determined, and the process of interpreting results could then be undertaken.
4.7 Summary

The study sampled 130 participants from pre-defined strata groups. These strata groups were derived from the Mental Health, Older Persons' Health, Women’s Health and Christchurch Public Hospital Divisions. Study inclusion criteria were established on the basis that prospective participants had to have had involvement or experience with documenting or using process maps. Data were collected from two sources: a self-report questionnaire developed specifically for this project and from semi-structured interviews. Ethical approval for the study was obtained from the University of Otago Ethics committee and key ethical considerations were addressed and identified accordingly for the duration of the study. Data analysis was conducted from both a qualitative and quantitative framework. The selection of both methodologies allowed for clear quantifying of measures and provision of a richer meaning and feeling.
5 Results – Quantitative

5.1 Introduction

Quantitative analysis was completed on the sixty five returned questionnaires. This chapter details the characteristics of the sample including demographics, occupation and division. Each of the questionnaire questions have been analysed and will be discussed. Findings will be broken down into three levels. Firstly each questions’ findings will be first presented in full. The questions will be then be broken down and findings will be presented and compared across the strata group. These findings will be further broken down into “occupation” and compared across the strata groups on the basis of occupation. Finally the quantified themes generated from the questionnaire will be identified and discussed in full, across strata and “occupation” groups.

5.2 Breakdown of Questionnaire Sample (Figure 5)

Figure 5: Breakdown of questionnaire samples
The breakdown of the questionnaire sample indicates that from a possible 130 responses, 65 were received back. Of these 37% were from the Mental Health division, 31% from the Older Persons Health division and 19% being represented by “other” divisions within the CDHB. The largest group of responses was received from Allied Health Professionals (30.7%). Nursing (18.4%) and Management (18.4%) professional groups contributed the second highest response rates. The Medical profession (4.7%) was the smallest group of respondents to the questionnaires.

5.3 Demographic Characteristics of Questionnaire Sample (Table 1)

90.7% of the sample (n=65) were aged between 30-59 years, with the largest group of respondents falling between 40-44 years of age (21.5%). There were 55 females, 8 males and 2 respondents who did not indicate gender. Forty five (45) respondents identified themselves as of New Zealand European descent, while 9 identified that they were of Maori descent.
Table 1 Demographic Characteristics of Sample

<table>
<thead>
<tr>
<th>Age</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-24</td>
<td>0     (0)</td>
</tr>
<tr>
<td>25-29</td>
<td>3     (4.6)</td>
</tr>
<tr>
<td>30-34</td>
<td>9     (13.8)</td>
</tr>
<tr>
<td>35-39</td>
<td>9     (13.8)</td>
</tr>
<tr>
<td>40-44</td>
<td>14    (21.5)</td>
</tr>
<tr>
<td>45-49</td>
<td>10    (15.4)</td>
</tr>
<tr>
<td>50-54</td>
<td>10    (15.4)</td>
</tr>
<tr>
<td>55-59</td>
<td>7     (10.8)</td>
</tr>
<tr>
<td>60-64</td>
<td>2     (3.1)</td>
</tr>
<tr>
<td>65+</td>
<td>1     (1.5)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>8     (12.3)</td>
</tr>
<tr>
<td>Female</td>
<td>55    (84.6)</td>
</tr>
<tr>
<td>Not specified</td>
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</tr>
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<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand European</td>
<td>45    (69.3)</td>
</tr>
<tr>
<td>Maori</td>
<td>9     (13.8)</td>
</tr>
<tr>
<td>Other European</td>
<td>9   (13.8)</td>
</tr>
<tr>
<td>Other</td>
<td>2     (3.1)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christchurch</td>
<td>3     (4.6)</td>
</tr>
<tr>
<td>Mental Health</td>
<td>24    (36.9)</td>
</tr>
<tr>
<td>Older Persons Health</td>
<td>20  (30.8)</td>
</tr>
<tr>
<td>Women’s Health</td>
<td>6     (9.2)</td>
</tr>
<tr>
<td>Other</td>
<td>12    (18.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Occupation</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>8     (12.3)</td>
</tr>
<tr>
<td>Allied Health Professional</td>
<td>20    (30.8)</td>
</tr>
<tr>
<td>Management</td>
<td>12    (18.5)</td>
</tr>
<tr>
<td>Medical</td>
<td>3     (4.6)</td>
</tr>
<tr>
<td>Nursing</td>
<td>12    (18.5)</td>
</tr>
<tr>
<td>Other</td>
<td>10    (15.4)</td>
</tr>
</tbody>
</table>

5.4 Experiences of Process Mapping: Questions 1 – 4 (Figure 6)

Figure 6 Experiences of Process Mapping: Questions 1 -4
Respondents were asked to comment on their experiences with process mapping in questions 1-4 of the questionnaire (see Appendix 4). They were asked to provide a fixed response “yes” or “no” to each of these questions. Proportionally more respondents answered “yes” to questions 1-4 (between 73.8% – 90.8%) than “no”. Fifty one (78.5%) of questionnaire respondents identified having contributed to process mapping in their work place. Forty eight (73.8%) of the respondents indicated that process maps had increased their understanding of unit processes. The question regarding whether process maps increased the individuals understanding of unit processes, received the highest negative response with 16 (24.6%) of the respondents of the opinion that process mapping had not increased their understanding of unit processes. Fifty nine (90.8%) respondents were of the opinion that process mapping was a useful tool for capturing health care processes in the CDHB, with 56 (86.2%) of respondents reporting that they found the visual presentation of a process in a process map useful.

5.5 Experiences of Process Mapping by Division: Questions 1 – 5 (Table 2)

Analysis of Questions one to five by division indicated a high overall response of agreement (“yes” response), although it should be pointed out that within some divisions (Christchurch Public Hospital (N=3) and Women’s Health (N=6)) the number of total respondents were low. The breakdown of results by division shows that there was overall agreement for each question asked within the division. Across the five divisions responses from Christchurch Public Hospital and “Other” reported the overall highest rates of agreement to the five questions. The highest rate of overall agreement (96.7%) was to the question three (“In your opinion is process mapping a useful tool in capturing health care processes in CDHB?”). Those respondents from Christchurch Public Hospital, Women’s Health and “Other” (100%) indicated that they had all contributed to process mapping exercises. The respondents from the Mental
Health division (58.3%) were the least likely to have contributed to process mapping. Older Persons Health respondents were the least likely to believe that process maps had increased their understanding of unit processes, with only 55% of respondents of the opinion that process mapping had increased their understanding. The remaining divisions indicated strong agreement to this question (question 2) (79.2% - 100%). The strongest levels of agreement (“yes” responses) were received to the questions concerned with the usefulness of process maps in capturing health care processes (80% – 100%) and that the visual representation was useful (80% - 100%). Question 5 asked respondents to identify if they referred to the process maps for their unit. This question received the second lowest level of agreement (78.3%), with the Women’s health division (60%) the lowest group of respondents to refer to process maps.

| Table 2: Total Numbers by Division indication agreement with statement (Questions 1-5) |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|                                | Christchurch | Mental Health | Older Persons Health | Women’s Health | Other | Total |
| Total Number:                  | 3            | 24            | 20                  | 6                | 12    | 65    |
| Contributed to Process Mapping | N%           | (100)         | (58.3)              | (80)             | (100) | (78.5) |
| Increase understanding of unit processes | N%           | (100)         | (79.2)              | (55)             | (80)  | (91.7) |
| Useful tool to capture health care processes | N%           | (100)         | (100)               | (95)             | (80)  | (100) |
| Visual representation useful | N%           | (100)         | (95.5)              | (80)             | (83.3) | (91.7) |
| Reference to process maps     | N%           | (100)         | (81.8)              | (73.7)           | (60)  | (81.8) |

5.6 Experiences of Process Mapping by Occupation Group: Questions 1 – 5 (Table 3)

Analysis of questions one to five by occupation group indicated a more diverse range of responses. The numbers of respondents within particular professional groups were low (for example the total number of responses from the medical profession was three). Over the five questions the “Other” and “Management”
professional group responses indicated the highest level of agreement to the five questions. The professionals belonging to the “Other” group indicated 100% agreement with each of the five questions, while the “Management” responses ranged from 88.9% (question 5) to 100% (question 3) agreement to the questions. Of the professional groups Allied Health Professionals were the group least likely to have contributed to documenting process maps, with only 60% having contributed to process mapping initiatives. The lowest level of agreement (‘yes’ response) was received from “administration staff”, with only 37.5% of them indicating that process maps had increased their understanding of unit processes. The highest level of agreement across professional groups was to the question of whether or not process maps were useful tools to capture health care processes (90% - 100%) with an average of 96.7% of respondents indicating that process maps were useful tools to capture health care processes. The question concerned with whether the visual representation was useful received a high level of agreement (75% – 100%) with 88.9% of the respondents indicating that they found the visual representation useful. Of the professional groups the “Nursing” group was the group least likely to refer to the process maps with only 58.3% of this group indicating that they referred to the process maps.
Table 3: Experiences of Process Mapping by Occupation Group: Questions 1-5

<table>
<thead>
<tr>
<th></th>
<th>Admin</th>
<th>Allied Health Professional</th>
<th>Management</th>
<th>Medical</th>
<th>Nursing</th>
<th>“Other”</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number</td>
<td>8</td>
<td>20</td>
<td>12</td>
<td>3</td>
<td>12</td>
<td>10</td>
<td>65</td>
</tr>
<tr>
<td>Contributed to Process Mapping</td>
<td>N</td>
<td>7</td>
<td>12</td>
<td>11</td>
<td>2</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>%</td>
<td>(87.5)</td>
<td>(60)</td>
<td>(91.7)</td>
<td>(66.7)</td>
<td>(75)</td>
<td>(100)</td>
<td>(78.5)</td>
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<tr>
<td>Increased understanding of unit</td>
<td>N</td>
<td>3</td>
<td>15</td>
<td>11</td>
<td>2</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>processes %</td>
<td>%</td>
<td>(37.5)</td>
<td>(75)</td>
<td>(91.7)</td>
<td>(66.7)</td>
<td>(66.7)</td>
<td>(100)</td>
</tr>
<tr>
<td>Useful tool to capture</td>
<td>N</td>
<td>7</td>
<td>18</td>
<td>11</td>
<td>3</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>health care processes %</td>
<td>%</td>
<td>(100)</td>
<td>(94.7)</td>
<td>(100)</td>
<td>(90)</td>
<td>(100)</td>
<td>(96.7)</td>
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<td>Visual representation useful</td>
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<td>6</td>
<td>17</td>
<td>11</td>
<td>3</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>%</td>
<td>%</td>
<td>(75)</td>
<td>(89.5)</td>
<td>(91.7)</td>
<td>(100)</td>
<td>(81.8)</td>
<td>(100)</td>
</tr>
<tr>
<td>Reference to process maps</td>
<td>N</td>
<td>6</td>
<td>14</td>
<td>8</td>
<td>2</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>%</td>
<td>%</td>
<td>(75)</td>
<td>(77.8)</td>
<td>(88.9)</td>
<td>(66.7)</td>
<td>(58.3)</td>
<td>(100)</td>
</tr>
</tbody>
</table>

5.7 Experiences of Process Mapping: Questions 6 -14 (Figure 7)

Questions six to fourteen asked respondents to rank their agreement on a likert scale to the questions posed. Level of agreement towards each of the questions was high (with between 74 and 95% of respondents agreeing to each of the questions posed). Of the eight questions asked, question 13 “it is important to
update the information contained within the process map to accurately reflect current processes” received the highest rate of agreement from respondents (N=62). Levels of disagreement to the nine questions were lower for each question than the number of “don’t know” responses that were received. The two questions considering whether process maps incorporated relevant health care standards (question 9) and their usefulness in improving service delivery (question 8) received the lowest level of agreement and the highest level of “don’t know” responses.

5.8 Experiences of Process Mapping by Division: Questions 6 – 14 (Table 4)

Analysis of Questions six to fourteen by division indicated an overall high response of agreement, although it should be pointed out that within some divisions (Christchurch Public Hospital (N=3) and Women’s Health (N=6)) the overall number of respondents is low. The breakdown by division averages out the level of agreement to be between 71.9% - 96.9% for each of the questions. The divisions had the combined lowest average for the question (question 6) regarding how accurately the process maps represented the identified process (71.9%) with the highest combined average of agreement (96.9%) going to the question (question 7) on how successfully process maps integrate clinical processes. Christchurch Public Hospital had 100% agreement to each of the questions. The lowest level of agreement was to the question (question six) regarding the accurateness of the process maps in capturing the process of the unit with only 40% of Women’s Health respondents indicating that they agreed with this. Of the five divisional groups the Mental Health and Older Person’s Health divisions had the lowest level of agreement to each of the questions other than the question (question six) concerning the accurateness of process maps in capturing the processes of the unit, with the levels of agreement ranging between 66.6% - 91.6% (Mental Health division) and 60 % - 100% (Older Persons Health division).
Table 4: Total Numbers by Division indicating agreement with statement (Questions 6-14)

<table>
<thead>
<tr>
<th>Total Number</th>
<th>Christchurch</th>
<th>Mental Health</th>
<th>Older Persons Health</th>
<th>Women's</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are readily accessible</td>
<td>N</td>
<td>3</td>
<td>19 (79.1)</td>
<td>16 (80)</td>
<td>4 (80)</td>
<td>12 (100)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(80)</td>
<td></td>
</tr>
<tr>
<td>Need to be updated to accurately reflect process</td>
<td>N</td>
<td>3</td>
<td>18 (75)</td>
<td>16 (80)</td>
<td>4 (80)</td>
<td>11 (91.6)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Accurately represent the identified process</td>
<td>N</td>
<td>3</td>
<td>18 (75)</td>
<td>12 (60)</td>
<td>4 (80)</td>
<td>9 (75)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Are useful</td>
<td>N</td>
<td>3</td>
<td>18 (75)</td>
<td>13 (65)</td>
<td>5 (100)</td>
<td>8 (100)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Add value</td>
<td>N</td>
<td>3</td>
<td>20 (83.4)</td>
<td>16 (80)</td>
<td>5 (100)</td>
<td>12 (100)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Incorporate relevant health care standards</td>
<td>N</td>
<td>3</td>
<td>19 (79.2)</td>
<td>16 (80)</td>
<td>5 (100)</td>
<td>11 (91.7)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Useful in improving service delivery</td>
<td>N</td>
<td>3</td>
<td>16 (66.6)</td>
<td>16 (80)</td>
<td>4 (80)</td>
<td>12 (100)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Successfully integrate clinical processes</td>
<td>N</td>
<td>3</td>
<td>22 (91.6)</td>
<td>20 (100)</td>
<td>5 (100)</td>
<td>12 (100)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
</tr>
<tr>
<td>Accurately capture the processes of a unit</td>
<td>N</td>
<td>3</td>
<td>21 (87.5)</td>
<td>17 (85)</td>
<td>2 (40)</td>
<td>10 (83.4)</td>
</tr>
<tr>
<td>%</td>
<td>(100)</td>
<td></td>
<td></td>
<td></td>
<td>(85)</td>
<td></td>
</tr>
</tbody>
</table>

5.9 Experiences of Process Mapping by Occupation Group: Questions 6-14

(Table 5)

Analysis of Questions 6-14 by Occupation Group indicated lower rates of agreement than when responses were examined by division, although each occupation group indicated overall agreement to each of the questions. As a group, Nurses generally had a lower level of agreement to each of the questions, with their response rates ranging from 50-91.7%. Of these responses, five of the nine questions only fell within the 50–60% range. The “others” group have the highest response rates to each of the questions, with the majority of their responses indicating agreement (90 %+). This high response rate was mirrored by the management group whose level of responses ranged from 81.8% to 100% agreement with each of the questions.
Table 5: Total numbers by occupation group indicating agreement with statements (Questions 6-14)

<table>
<thead>
<tr>
<th></th>
<th>Administration</th>
<th>Allied Health Professional</th>
<th>Management</th>
<th>Medical</th>
<th>Nursing</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are readily accessible</td>
<td>N</td>
<td>7</td>
<td>18</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>(87.5)</td>
<td>(90)</td>
<td>(100)</td>
<td>(66.7)</td>
<td>(58.3)</td>
<td>(90)</td>
</tr>
<tr>
<td>Need to be updated to</td>
<td>N</td>
<td>6</td>
<td>18</td>
<td>9</td>
<td>2</td>
<td>10</td>
<td>52</td>
</tr>
<tr>
<td>accurately reflect</td>
<td>%</td>
<td>(75)</td>
<td>(90)</td>
<td>(81.9)</td>
<td>(66.7)</td>
<td>(58.3)</td>
<td>(100)</td>
</tr>
<tr>
<td>the identified process</td>
<td>N</td>
<td>5</td>
<td>16</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>(72.5)</td>
<td>(80)</td>
<td>(81.8)</td>
<td>(66.7)</td>
<td>(50)</td>
<td>(80)</td>
</tr>
<tr>
<td>Accurately represent</td>
<td>N</td>
<td>4</td>
<td>15</td>
<td>9</td>
<td>3</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>the identified process</td>
<td>%</td>
<td>(50)</td>
<td>(75)</td>
<td>(81.9)</td>
<td>(100)</td>
<td>(72.7)</td>
<td>(80)</td>
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<tr>
<td>Are useful</td>
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<td>7</td>
<td>16</td>
<td>11</td>
<td>2</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>(87.5)</td>
<td>(80)</td>
<td>(100)</td>
<td>(66.7)</td>
<td>(83.4)</td>
<td>(100)</td>
</tr>
<tr>
<td>Add value</td>
<td>N</td>
<td>5</td>
<td>17</td>
<td>10</td>
<td>2</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Incorporate relevant</td>
<td>%</td>
<td>(72.5)</td>
<td>(85)</td>
<td>(90.9)</td>
<td>(66.7)</td>
<td>(83.4)</td>
<td>(100)</td>
</tr>
<tr>
<td>health care standards</td>
<td>N</td>
<td>6</td>
<td>16</td>
<td>11</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Useful in improving</td>
<td>%</td>
<td>(75)</td>
<td>(80)</td>
<td>(100)</td>
<td>(66.7)</td>
<td>(58.3)</td>
<td>(90)</td>
</tr>
<tr>
<td>service delivery</td>
<td>N</td>
<td>7</td>
<td>20</td>
<td>11</td>
<td>3</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Successfully integrate</td>
<td>%</td>
<td>(87.5)</td>
<td>(100)</td>
<td>(100)</td>
<td>(91.7)</td>
<td>(100)</td>
<td>(100)</td>
</tr>
</tbody>
</table>

5.10 Frequency of reference to Process Maps

The majority of respondents (n= 47) referred to the process maps within their workplace (Figure 8) of these twenty three (n=23) indicated that they referred to the process maps on an “as required” basis (Figure 9).
5.10.1 Frequency of reference to Process Maps by Division and Occupation Group

Analysis by division (Figure 10) and by occupation group (Figure 11) showed a lack of consistent pattern emerging around the frequency with which process maps were referred to. Analysis, instead, showed that there was a broad range of frequencies used in referring to process maps.

5.11 Quantified Experiences of Process Mapping Grouped into Themes (Figure 12)
Respondents were asked to identify drawbacks and benefits associated with process mapping. The seven themes identified from this feedback are outlined in figure 11. The seven themes have been spilt into responses which identified them as a drawback and responses that identified them as a benefit. The most commented on theme was “logic” (53.8%). Of this 82.8% identified this as a benefit i.e. process maps are logical; while 17.2% reported that they found this a drawback i.e. process maps are illogical. The second most commented on theme was “review” (47.7%). The response rates for this were spilt between seeing review as a drawback (51.6%) or a benefit (48.4%). Of the seven themes, “standardisation” was the least commented on (13.8%) although the majority of the respondents reported this as a benefit (89%). The identified themes: “learning styles” (29.3%), “simplification” (29.3%), “time” (26.1%), and “detail” (21.5%) were all identified to a similar extent. The majority of respondents who commented on “detail” (92.8%), “simplification” (63.2%), and “time” (82.3%) reported that they found these factors a drawback to process mapping.

5.12 Quantified Experiences of Process Mapping by Division and Occupation Group

Each of the seven identified themes pertaining to the drawbacks and benefits of process mapping (refer to figure 11) have been analysed by division and occupation grouping. The analysis of the theme “standardisation” by division and occupation group overall indicated a high response rate of seeing one of the benefits of process mapping as standardisation of processes, with the exception of administration staff (12.5%) who saw this as a drawback to process mapping. The analysis of the theme “detail” by division and occupation group overall indicated a high response rate of seeing the amount of detail contained within a process map as a significant drawback to process mapping. The only occupation group that identified the theme of detail as a benefit to process mapping was Allied Health Professionals (5%), while the only division to respond positively to the amount of detail was Older Persons Health (5%).
The analysis of the theme “review” by division and occupation group overall indicated a high response rate of seeing the amount of detail contained within a process map as a significant drawback to process mapping. There was slightly more benefit seen to “review” across the divisions with Mental Health (4.2%), Older Persons Health (5%) and “Other” (8.3%) identifying a positive aspect to “review” aspect involved with process mapping. The professional groups to indicate this as a benefit again included Allied Health Professional (10%) and “others” (10%).

The analysis of the theme “learning styles” by division and occupation group overall indicated that this theme was a benefit of process mapping. The exceptions to this were from Women’s Health where the benefit – drawback responses were evenly divided (16.7%) across the respondents and from the Nursing group (16.7%) who more proportionally identified “learning styles” as a drawback to process mapping. The analysis of the theme “simplification” by division and occupation group overall indicated that this theme was a drawback of process mapping. The exceptions to this were from the group belonging to “other” divisions (25%) who identified this theme as a benefit of process mapping and to the management occupation group (25%) who also identified this as a benefit of process mapping.

The analysis of the theme “logic” by division and occupation group overall indicated a high proportion of respondents see process maps as “logical” identifying this as a significant benefit of process mapping. The exception to this from within the division groups was Christchurch hospital (33.3%) that identified the theme as a drawback to process mapping and the nursing occupation group (25%) who also identified this as a drawback to process mapping. The analysis of the theme “time” by division and occupation group overall indicated a high response rate towards the amount of time that process mapping requires as a significant drawback of process mapping.
5.13 Summary

A high proportion of respondents indicated high overall levels of acceptance and feasibility towards process mapping. The majority of respondents had contributed to process mapping. The respondents on the whole identified positive responses when questioned regarding their experiences with process mapping and a high proportion of the sample indicated levels of agreement to the likert scale questions. On the whole the response across the strata groups and occupation groups indicated positives responses to their experiences of process mapping and strong levels of agreement to the questions posed. The Mental Health and Older Person’s Health strata groups had the biggest range of agreement levels. Seven themes were identified from the quantified feedback.
6 Results – Qualitative

6.1 Introduction

This chapter presents the qualitative findings. It begins with a broad overview of the interview structure, data analysis process and introduces the factors which shaped the direction and focus of the interviews. It presents the identified themes generated during the data analysis. The identified themes have been grouped into one of three sets: acceptance, feasibility and other. Each theme will be introduced and the subthemes that emerged within these themes will be presented in full.

Qualitative analysis was completed on seven interviews. The purpose of the interviews was to gain a more detailed understanding of the issues associated with the acceptance and feasibility of process mapping in the CDHB. It was also expected that the interviews would provide the opportunity to either validate or refute the themes generated from the questionnaire. These initial themes were logic, review, standardisation, learning styles, simplification, time, and detail. The initial direction of the interviews was directed by these themes. Each interview involved a one hour session. All the interview transcripts were transcribed verbatim. Each interview transcript was then reviewed several times, common themes were identified across the transcripts and documented separately, each theme was given an identifying label/name, and a definition was developed around the theme. Identified themes were grouped under three headings; acceptance, feasibility and other (see table 6).

<table>
<thead>
<tr>
<th>Table 6 – Interview themes</th>
</tr>
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<tbody>
<tr>
<td><strong>ACCEPTANCE</strong></td>
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<tr>
<td>Theme</td>
</tr>
</tbody>
</table>

68
<table>
<thead>
<tr>
<th>Theme</th>
<th>Process of involvement shaped opinion</th>
<th>Processing of information</th>
<th>Ownership</th>
<th>Exposing protectionism</th>
<th>Passive resistance</th>
</tr>
</thead>
</table>

**FEASIBILITY**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Application of process mapping</th>
<th>Review and maintenance</th>
<th>Time</th>
<th>Team composition</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>• Guide to practice</td>
<td>• Living document</td>
<td>• Getting it right</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Personality is the constraint</td>
<td>• Embedding the completed process mapping</td>
<td>• Self review</td>
<td></td>
</tr>
</tbody>
</table>

**OTHER**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Degree of familiarity with process mapping</th>
<th>Facilitation</th>
<th>Team functioning</th>
<th>Format outdated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• Mediation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Neutrality</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6.2 Acceptance

Interview participants identified the acceptance of process maps and process mapping within the CDHB as a multi-faceted phenomenon which occurred when a combination of individual, cultural, subjective and organisational
factors were present. Specifically the acceptance of process mapping was seen to be influenced by the following factors:

- Acceptance of process mapping shaped by having had direct involvement with process mapping
- Acceptance of process mapping is determined by how an individual processes information
- Acceptance of process mapping relies on the establishment of process ownership
- Acceptance of process mapping was achieved by the ability of the process mapping to expose protectionism within the workplace
- Acceptance of process mapping is hindered by the existence of a passive-resistant culture

6.2.1 Process of involvement shaped opinion toward process mapping

This theme identifies that interview participants' acceptance of process mapping was directly shaped by them having had direct involvement with process mapping in their workplace. The participants describe how the experience of being involved in developing process maps was influential towards shaping both their understanding of and attitude towards process mapping.

The initial reaction of most participants towards process mapping was often sceptical:

“(A)t first (I) thought it was a lot of jargon. I thought it was just somebody who has created a job for themselves and it was just something that was in” (Participant six).
For other participants the novelty of being consulted was their core motivating factor for participating “…(having)not been consulted historically……I was keen to do it for that reason” (Participant five) as opposed to the participant holding any strong feelings regarding the possible benefits of being included in documenting their workplaces processes.

As participants’ progressed through the process of documenting their workplace processes the experience, was often found to be “pretty tedious at time...(it was)useful tedium...(to)think about things that sometimes you just do so automatically” (Participant four). The majority of participants identified experiencing an attitudinal shift towards process mapping that occurred gradually as the process progressed:

“I can’t remember what made me think; oh this is a good thing to do. I can’t remember what clicked or when that happened, but the experience obviously began to roll...(it) became quite enjoyable” (Participant five).

While some participants recounted a gradual shift in attitude, other participants where able to pinpoint the particular aspect, or part of the process mapping, that changed their attitude and resulted in them becoming strong supporters of what process mapping stood for and offered:

“(A)ll of this stuff came out of it …we started to map all these systems and what we found was amazing...(I) realised what a helpful tool it was, I was committed to it and I am still committed” (Participant six).

Having the opportunity and experience of being responsible for documenting their workplace processes, a number of the participants identified some dramatic shifts in attitude towards process mapping. This ultimately resulted in them accepting what process mapping offered and acknowledged that process maps had a legitimate place in the organisation:
“(P)ossibly improved my view overall of flow charts in that they can actually be used properly instead of as I say trying to make them all things to all people” (Participant one).

6.2.2 Processing of information

This theme is concerned with the idea that the acceptance of process mapping is determined by how an individual processes information. This theme identifies that a person response to process maps is affected by how they process information either diagrammatically or as a written document.

A common theme across all of the interview participants was that a person’s response to process mapping is influenced by how they process information:

"Some people learn and read differently and some people dislike process mapping they like the written word and they like narrative...some people love them...when there is a lot of processes it can be helpful...some people do just not like process mapping they are just not visual people ...that there is not enough in writing...doesn’t spell it out enough” (Participant two).

Some of the participants reported that they found process maps “...easy to read” (Participant two). These participants found that a process map was easy to follow and that it was “...an easy way of listing” the required information (Participant three). Participants that favoured processing information diagrammatically or pictorially were more likely to accept process mapping:

“...I find them really good to look at...I’m a visual person so I can follow the process, rather than reading a whole load of words that I will get bored half way through” (Participant five).

For those participants who identified as “...quite a strongly visual sort of person” (Participant four) the associated benefits of having the information presented
in a pictorial manner were significant. Presenting the information in a process map provided those participants with the ability to “…quickly see and understand a process” largely due to the fact that “…you didn’t have to read a lot of narrative” (Participant two).

That “…some people struggle with flowcharts” (Participant seven) was raised repetitively. It was suggested that “…people who don’t do the visual thing struggle with it” (Participant seven). Those participants, who identified a preference for information to be presented in a textual or written format, were less likely to have responded positivity to process mapping and less likely to accept process mapping:

“I am not very good with flowcharts and things like that I am a text person, I’m a language person, I’d rather read a description of something then see a visual aid of it so I’m at a disadvantage from that” (Participant One)

6.2.3 Ownership

This theme describes how the acceptance of process mapping is reliant to a large extent on the establishment of process ownership. This category expands on how ownership can be developed within the team when the process mapping initiative is based around the concepts of consultation and inclusion.

Ownership and acceptance have been closely linked. If ownership is achieved then it follows that the process maps have been accepted. It has been suggested that ownership is best achieved by having a wide representation of the work place involved in the project, whether they directly contribute to documenting the processes or whether their contribution comes via the feedback process:
“(T)he fact that everybody from every level has been involved...pretty much ensures that acceptance on the shop floor...(If) fostered on people from above they will pay lip service to it...probably ignore it... There was) better acceptance on the shop floor for these processes...because they were involved in putting them together” (Participant one).

The following factors contributed towards improving or limiting process ownership. Ensuring that process ownership was achieved was linked to the approach that was adopted during the process mapping initiative. When ownership was missing, it was attributed to situations where the participants felt that a certain amount of coercion had occurred and the process mapping initiatives had been a directive. For example the “…general manager said you will be doing SPF...everybody just did it” (Participant two). There was no sense of ownership present towards the processes. Adopting a “directive” approach failed to achieve buy-in from the desired individuals and ensured that process ownership was not achieved.

There was also potential for ownership to shift from one party to another. For this shift to occur, work places needed to feel that they were directing the process. They needed to be the ones who came

“... up with this idea to improve their process and they put it in place. ...(I)t worked because it was their idea and not some outside persons” (Participant seven).

The facilitation of process mapping was identified as having a role to play in fostering ownership. The key role of the facilitator was in “…helping us map what we do” while ensuring that they maintained the belief within the group that the process documentation belonged to the group members “… it’s ours…this is our specialty” (Participant four). Ownership was created when the facilitator made it
“...clear from the beginning that this wasn’t yours (the facilitators), it was ours, um and I think that never once did I think that it was yours...it needs to have ownership of the people” (Participant five).

6.2.4 Exposing protectionism

This theme highlights how the acceptance of process mapping was achieved by the ability of the process mapping to expose protectionism within the workplace. Process mapping initiatives have the ability to expose the existence of protectionism within workplaces and this fosters acceptance of process mapping.

For a number of participants (n=3), being involved in process mapping initiatives exposed team members who displayed a strong sense of ownership over information, to the point of excluding other team members from having knowledge of this information. This occurred by “...having one person doing it and they are the only ones” (Participant two). Protectionism of team process was further highlighted to participants by the “...representation on teams” where only a “...very small proportion of the team” (Participant two) was represented. This was attributed to the fact that those individuals were the ones with knowledge of the process and who had responsibility for completing the tasks associated with that process.

A reason for protecting this information has been linked to the notion of who wields power within the team:

“(I) often wondered is it power stuff that one or two people know everything...and they don’t want to make it universally known” (Participant six).
Thus while process mapping is able to expose individuals within a team who hold all the information as their own, it also provides a remedy for dealing with this behaviour by shifting the power “...from protectionist hands...” to “...hav(ing) an open...process” (Participant two) where the whole team is aware, included, and involved in unit processes.

6.2.5 Passive resistance

In this theme participants identified how the acceptance of process mapping is hindered by the existence of a passive-resistant culture within the organisation. This culture was seen to create a number of challenges to having process mapping accepted in the CDHB.

A “...deeply ingrained culture of passive resistance...” (Participant one) was identified as existing within the organisation. A few of the participants felt that people were sick of the constant change and challenge that has existed within the organisation, with participants reporting that “…we are change fatigued” (Participant one). There was a strong sense that people wanted others to “…leave us alone things are working” (Participant six). It was expressed that people appear to

“...accept things at a very superficial level. ...(G)etting down the line you see there is a lot of underlying non-acceptance...(resulting in) no buy-in even through we included them” (Participant two).

With this “…resistance to change” evident within the organisation it was suggested that process mapping stood as “… little chance as anything else” of being accepted (Participant one).

Shifting the culture of passive resistance was seen as a challenge:
“(I)t was hard, it was hard getting people to understand that this was not about challenging how they do things, it was about looking at a process, identifying its good bits and if there were lots of bits (that) didn’t have to be there, lets get rid of them. And if good bits were (there), let’s enhance the good bits” (Participant six).

One participant likened the process to one of ...

“...taking something out of an extremely dark cupboard and exposing it to the light and having an extremely good look at it. ...(I)f (it) hasn’t been documented or ...hasn’t changed noticeably...that doesn’t mean that it is wrong. ...(T)he fact that it hasn’t been done before doesn’t mean its bad. ...(I)t gives people confidence that they have done it right” (Participant one).

One of the challenges this culture presents, is that people are unable to view process mapping as an opportunity to increase their understanding of processes. Instead, they focus on the idea that process mapping is a challenge to how the team completes the daily work tasks. It is a ...

“...great mistake to think that process mapping is about beating people over the head with change. It is not; there is an awful lot about it that (provides) confirmation of the good things that have been done and (that we) continue to do” (Participant one).

6.3 Feasibility

The feasibility of using process maps to document health care processes was identified as being dependent on a combination of resource, cultural and organisation factors. Specifically the analysis of the interviews identified the following themes as impacting on the feasibility of using process maps to document health care processes in the CDHB:
• The feasibility of using process maps to document health care processes depended on how the completed process maps were applied to daily practice

• The feasibility of using process maps to document health care processes is influenced by how the process maps are reviewed and maintained

• The feasibility of using process maps to document health care processes is influenced by the time that is required to document process maps

• The feasibility of using process maps to document health care processes depends on the composition of the team responsible for documenting the process maps

6.3.1 Application of process maps

This theme describes how participants identified the feasibility of using process maps to document health care processes is dependent on how the completed process maps were applied to daily practice. Two aspects of the theme emerged within this. The first was that process maps should be seen as a tool by which to guide practice rather than a tool that must be strictly adhered to at all times regardless of circumstance. The second aspect to the theme identified was concerned with the idea that the process map itself was not a constraint to safe daily practice, but rather the personality of the person applying the process map was identified as the constraint.

6.3.1.1 Guide to practice

This aspect of the theme is concerned with the application of process maps. Participants identified that process maps are best applied as a guide to assist with practice.
The notion of applying a process map as more of a guide than an absolute rule was expressed by the majority of participants. It was felt that process maps were “…good and then if you don’t understand something, you can go and find out” (Participant five). Participants identified process maps as a “… guideline, they are not set in… no process is set in concrete, you know, you can’t use them with blinkers on. …(They are a) guide for day-to-day practice,… probably useful as a troubleshooting tool…(and) act as an aide memoir. …(T)hey are a guideline, they are not an absolute … rule of thumb” (Participant one).

The limitation of using process maps is that “…sometimes it doesn’t capture decision making…(or) every possible possibility” (Participant four). It’s “…basically the route you take but don’t forget odd things actually happen” (Participant one). When this occurs “…you need more information than the flowchart can hold” (Participant three). The application of using process maps in daily situations is a “…journey, they are going to be restrictive, you can’t take them at absolute face value, even when you have worked really hard on them and they’re finished, because they don’t allow for every eventuality, because you can’t, and I think people try to do that with flowcharts….I kept saying just concentrate on the 80% rule” (Participant one).

Concern was expressed that some individuals would apply process maps in the following way:

“…to make sure that I have done all of it, and that then meant they weren’t sensitive to a person’s need(s), just for them to sit down and say: ‘Is there something else you want to talk about today, you seem sad or low?’” (Participant four).
Some participants acknowledged that it was difficult to capture this compassion and sensitivity in a process map and it was seen as a “…major problem; I just see that the person’s ability to do that just sits outside of the process...document” (Participant four). Process maps should at best be viewed as “…the way you support your care” (Participant four).

6.3.1.2 Personality is the constraint

This aspect of the theme is concerned with the influence that a person’s personality has on their application of process maps to their daily practice.

Process maps have been labelled as “…very black and white, very concrete, no sort of” (Participant five) and that there is limited scope for making them more flexible. Participants expressed the concern that this characteristic of process maps coupled with a person’s personality could result in potential difficulties:

“(I)t’s down to people’s personality...how people use them at the end. From...a rule of thumb or guideline, …basically the route you take, but don’t forget (that) the odd things happen...it’s how people use them at the end. ...(You’ve) got both ends of the extreme” (Participant one).

It was felt that people whose nature was too concrete and black and white “…may be limited by the flowchart box (and) that their thinking doesn’t exceed outside it” and the risk exists that these types of personalities “…may just totally and utterly adhere to that” (Participant two).

Further, concern was raised that process maps could be applied as “…quick and easy, just to glide through without reading more into the background things and just skidded over the surface. ...(Y)ou need to have more information than the flowchart can hold. The only thing I can say, is that it can be a bit of a short cut, and you need to really look around things sometimes and not take short cuts all the time” (Participant three).
6.3.2  Review and maintenance

This theme considers how the feasibility of using process maps to document health care processes, is influenced by the degree to which the process maps are reviewed and maintained upon their completion. Two aspects emerged within this theme. The first was that process maps, when successfully embedded into daily practice can be viewed as a living document. The second aspect identified the challenge and dilemma of successfully embedding the process maps into daily practice.

6.3.2.1  Living document

This aspect of the theme explores the concept of the process map as a living document and highlights some of the challenges of successfully embedding process maps into daily practice to achieve living document status.

A number of participants, when discussing the review and maintenance aspect of process maps, alluded to process maps as being a living document. A living document was classified as something that should be

“...constantly pull(ed) off the shelf and I hope that we see its pages all ratty and thumbed and you know, like you think okay this has been used” (Participant four).

The evidence of whether or not a document could be considered to be a living document was evident in the state of it:

“(By the) time they come up for review they should be dog-eared, jam smeared and well in truly hanging off their punch holes. ...(They should be) used and referred to the whole time” (Participant one).

As opposed to a document which is seen to “...just sit on the shelf gathering dust” (Participant four).
The true benefit of a living document is when “…it is used and revisited” (Participant six). The essence of a living document is that it is regularly reviewed and maintained. “It is a living document, you can change it” (Participant six) as required to accurately reflect the process in its ongoing state.

6.3.2.2 Embedding the completed process mapping
This aspect of the theme identifies the challenge of successfully embedding the completed document into daily work practices.

All of the participants acknowledged the struggle of successfully embedding process mapping into daily practice. The maintenance phase of the process documentation was considered to be “…the most difficult…” aspect of the process, particularly “…getting people to read the SPF” (Participant two).

Once the process documentation is completed it is not uncommon for it to be placed to one side. The opportunity to embed across the entire workplace is often lost, as the pressures and demands of daily work consume the time of the people left with the responsibility of embedding the process documentation:

“We haven’t really thought about it, but that’s what happened since it finished. I want people to be motivated. I want people to be seeing it and saying, ‘well actually I don’t agree with that’” (Participant five).

Participants felt that merely having the document available for staff to read and review was insufficient to embed it. There was a stronger indication that it would be more successfully embedded if more effort was made to introduce it to the people who had not been involved in documenting the work place processes. One suggested means of instigating such an approach, was when it came time to review the process documentation
“...you can pass the review around to everybody to assess ... (They) will (make) alterations as they see fit and other people will comment on the alterations...I think everybody has input into that” (Participant three).

One of the identified challenges of embedding the process documentation was in “...how to get the enthusiasm and the ownership through to the people who work there and have actually got to do it” (Participant five). There was a sense that the “...people that were there have got stuff out of it and the people who weren’t there, I don’t believe will ever look at it” (Participant five).

The facilitators were seen as able to make a contribution to assisting work places to embed the process documentation. Ideally facilitators would:

“...revisit, don’t leave it to the people on board, because it will just get swallowed up. ...(L)ets come back in 6 months; ... you haven’t done anything about that...you know, put some responsibility back into it” (Participant six).

Spreading this ownership was a process which needed to include those with whom one had the previous experience of documenting the work place processes. It was felt that “...if...those of us who have been involved with it, if we are positive and enthusiastic about it, it will become more part of (the) culture” (Participant four).

Making process documentation part of a work place’s culture, would lead to it being common place for people to

“...just refer to it more, so think ...when people come to you and ask you to be a signpost and you say ‘oh look you check out the spf.’ (I)f you make it part of your language or your way of working” (Participant four).
6.3.3  **Time**

This theme considers how the feasibility of using process maps to document health care processes is heavily influenced by the time that is required to document process maps.

The majority of participants discussed issues to do with time. Two aspects emerged within this theme. The first was that it took a significant amount of time to get the process map right and that that was considered time well spent at the end of the exercise. The second aspect was concerned with the idea of acknowledging the need for self review and making it acceptable to take the time out from daily practice to complete this process of self-review.

6.3.3.1  **Getting it right**

This aspect of the theme explores the journey involved in accurately representing a process in the form of a process map and identified why it is important to take the time that is required to do this to achieve the desired end outcome.

Participants discussed the importance of spending the time on getting the process map right to receive maximum benefit from the process maps. Process mapping has been described as something that is “...*pretty tedious at times, ...it was useful tedium, ...(you) think about things that sometimes you just do automatically*” (Participant four). It is a process which is time consuming and“...*onerous*” (Participant five), but whose outcome is often considered to be one worthy of the time and money it requires to complete.

The process of documenting a process map involved the facilitator, who “...*asked us about everything we did and the way we operated the clinic, processed patients through, what we used in the way of documentation, how*
we documented things, what our practices were, our treatments and things like that. …They went away and they put it all together and came back and checked things through with us. …We looked at it; we thought, well we’ve left this out; no we really don’t need that, …so it was a gradual process of starting big and redefining and redefining and then adding on and taking away, and for us it probably meant time to think” (Participant three).

One of the difficulties experienced with process mapping was that people “…often want a quick fix” (Participant seven) to the problem. However, there is little perceived benefit in adopting this kind of approach. In fact “…if you do it any faster...you just don’t have the time to then look, form an opinion, (and) take it back to the whole team” (Participant seven). Along with the lost opportunity to involve as wider representation of the work place as possible in the consultation process, it was felt that if the process map was “…finished a lot quicker… (we) wouldn’t have got the results that we got” (Participant five).

It has been identified that it is a time consuming process to document a process map. A number of participants felt that it wasn’t:

“(R)eally the flowchart itself isn’t the time consuming thing, it is the information that you are gathering. Because you are dealing with lots of people, you really need to …review and reflect and review and refine, so that you can come to the ultimate aim of the exercise, with good result” (Participant three).

Therefore it is clear that the timely aspect of process mapping is “…not so much about documenting processes but turning people around in their thoughts...(e.g.) teams would edit it, (and)bring up the issues at the next meeting” (Participant two).
One of the arguments made about the amount of time involved is the difficulty that this poses to “...free up clinical people” (Participant seven).

6.3.3.2 Self review

This aspect of the theme highlights how participants felt conflicted by the amount of time that the process took them away from their daily work practices and how they had to come to the realisation that it was appropriate use of clinical time to engage in self review, and that this was often of benefit to their patients.

The majority of participants described how through their involvement in process mapping they came to realise that it is at times acceptable and appropriate to take time away from daily work tasks and engage in a review process which aims to strengthen the service that is ultimately deliver to the patients.

It was recognised that the

“...people who are doing the job know what isn’t working and they know how to fix it, but because they are working in their job they are not in a position to (make) change(s). …(They) don’t take time out for self-review...(take the) opportunity to review what they are doing...(develop) ideas...put them in place” (Participant seven).

Facilitated process mapping was seen as a means of addressing this. However, when it was initially suggested to participants that they be involved in a process mapping exercise the idea was met with “...absolute panic” (Participant one). All of the participants felt unable to “...take that much time out of my day, that’s ridiculous, we can’t sit around talking about this stuff we’ve got work to do” (Participant one). Participants reported needing
“...encouragement to say ‘its ok we know you have really high caseloads but you need to set aside this time; …this process will help standardise your work’” (Participant two).

Yet once participants were involved in the process, many found it easy to enter into the “…spirit of it” (Participant one) and found that they really enjoyed the opportunity that had been presented to them and considered that it was time well spent in the end. It provided a reality check for participants as they came to the conclusion that they “…are not, the be all and end all. They (the team) can survive without us” (Participant five).

For many participants there was a sense

“...that if it had been left to us, we would have all been too busy to do it, and I think that what happens, is that everyone is too busy looking after people and doing their good jobs and the things that they know they can do well; these sorts of things are just a pain in the butt and get left” (Participant five).

6.3.4 Team composition

This theme is concerned with the idea that the feasibility of using process maps to document health care processes depends on the composition of the team responsible for documenting the process maps. It focuses on the significance and influence that group members can have on the group’s ability to achieve the desired outcome.

For the majority of participants, the selection and composition of the group which worked on documenting process maps influenced the outcome and the process of getting to the desired outcome. Participants identified that the group “…mix is important,” the group needs to include “…people who you know are just going to get into it and do the job” (Participant four). There was a sense
that, with the right mix of people involved “...that the camaraderie on board” would have the ability to “...sweep them along” (Participant six).

The need for a broad-based representation of the entire workplace was identified. “...(T)he fact that it was more than one of us doing it, (was)...important” (Participant four). The group composition was considered “...useless ... if you do not include somebody from each level” (Participant one). If the group was truly representative of the workplace, it was felt that the group would “...end up with consensus and everyone agreeing” (Participant one) to the documented process.

Selecting and involving people that wanted to be there and contribute to the process was identified as crucial to the outcome. When the team composition included motivated and enthusiastic individuals the group functioned well:

“No there wasn’t really any disagreement. There were things that we forgot that we did; ...we would remember things and bounce things off one another; ...we would remember things we had left off” (Participant three).

When the group composition was less favourable and included individuals who were involved through directives from their work place, rather than of their own volition, it was identified that these “...people just couldn’t be bothered with it and I think you have got to make sure you get the right people involved” (Participant five). Participants described that it was “...really hard...(to) get really functional team dynamics” (Participant two) under these circumstances. It was not uncommon in situations such as this, for these individuals to negatively influence the experience. Group progress was hampered by “...team members who prevented discussion” (Participant two).
6.4 Other

Four other themes, that were considered to be of relevance to the study, but which were outside the domains of acceptance and feasibility, were identified. These were:

- the degree of familiarity with process mapping
- the facilitation of process mapping
  - how the facilitator mediates the process
  - the significance to the process of having “neutral” facilitators
- the impact of process mapping on team functioning
- issues with the current format

6.4.1 Degree of familiarity with process mapping

The participant described their previous involvement with, or usage of process mapping, and articulated an understanding of the core purpose of process mapping.

Of the seven interview participants, four reported that their experience was “…probably very little compared to some people” (Participant one). These participants identified that their involvement was limited to one occasion. The less experienced participants demonstrated a less advanced understanding of process mapping and identified that they were only starting out on their journey of process mapping and that, to date, the journey had “…been a learning process” (Participant three).

The remaining three participants had significantly more experience with process mapping. Two of the three experienced participants were constantly involved in process mapping exercises. The final participant had been involved with facilitating process mapping exercises for a period of ten years.
All of the experienced participants portrayed a significantly greater understanding of the purpose behind process mapping exercises.

6.4.2 Facilitation

Participants identified that the facilitation process was one of the key factors that contributed to the success of process mapping. Two distinct aspects emerged within this theme. The first aspect pertained to how the facilitators mediate the process. The second aspect was concerned with the significance of having neutral facilitators.

All of the participants identify that the “…facilitation process is very important…” in contributing to a successful outcome. Participants identified that it was the responsibility of the facilitator to ensure that “…each member… feels that their view is considered and valued” (Participant two). A successful facilitator should be “…good at listening to other peoples opinions” (Participant six). While demonstrating the ability to “…make every unit feel special, unique, and different, but really everyone does it the same” (Participant seven).

Core to being a facilitator was maintaining clear boundaries particularly in relationship to ownership of the processes. Participants had a strong sense that:

“It wasn’t yours, but you were leading it. ...(You) empowered all of us...(and) you didn’t pressure us...(but were) actually there to keep us on track”

(Participant five).

The likelihood of the process achieving the desired end outcome was ensured by having a person who was responsible for keeping the group task focused. It “...would not work if (it) didn’t have someone guiding the process” (Participant one). The facilitator attempted to guide the group towards its end outcome and “...didn’t let us get too bogged down.” The facilitator adopted the role of
“...time keeper” (Participant four). The driving force behind completing the process maps was the facilitator; they kept “...moving us on and giving us our ‘to do’ lists” (Participant four).

6.4.2.1 Mediation

This aspect of the theme is concerned with the role that the facilitator has in mediating the group discussion and keeping the group focused on the task of documenting their workplace processes.

Participants identified that the benefit of using external facilitators to mediate the process was that you had

“...people guiding you through that process ...that if left to us, we would have been too busy to do it...I don’t think we would’ve finished it, because we would have something more important to do” (Participant five).

One of the key responsibilities of the facilitator was to mediate the group discussion ensuring that at all times the group remained focused on the task. The ability to successfully mediate a group discussion is important

“...not everyone can be a facilitator; ...if you’ve got a rotten facilitator, the session will disintegrate into debates, ...or at worst, arguments. ...(G)ood facilitators keep things positive, ...recognise the gems...(and) keep people on track”(Participant one).

One of the key tasks that facilitators are charged with is drawing out the appropriate information about the process from group members. At this point of process mapping, the need for “...good facilitators” becomes apparent “...otherwise people will get stuck at a point” (Participant seven). The facilitators “...asked us all sorts of questions, ...asked us everything we did, and the way we operated” (Participant three). What can appear to be an endless barrage of
questions provides the facilitators with the what, how, when, why and who of the process. The purpose behind using an external facilitator is that it is

“…useful to have an outsider or layman offer a different slant on things or simply to say I don’t understand what you are trying to say…(as) opposed to somebody from within their group...(whose) got their own barrow to push” (Participant one).

Facilitators needed to “…know how hard to push” (Participant seven) to achieve the desired outcome. It was felt that this would require the facilitator to

”…play a role … (e.g.) do the naïve inquirer…good cop, bad cop (routine). Hopefully you get people to talk…it’s (all) about group dynamics… (e.g.) knowing when to ask the unit manager to leave” (Participant seven).

6.4.2.2 Neutrality
This aspect of the theme is concerned with the importance of having a facilitator who is impartial to the process, so that they are better able to provide a moderating and/or balancing influence to the group process and/or dynamics.

One of the essential aspects to the success of the process mapping initiative was the inclusion of neutral facilitators. Participants felt “…outside facilitators…didn’t take sides because it’s very political” (Participant five). Neutral facilitators were seen as critical to the outcome as it was

”…helpful to have someone leading the process that is outside the group …as opposed to somebody within the group …(whose) got their own barrow to push” (Participant one).

The importance of having the process facilitated by independent people was that the facilitator was able to make “…each member…feel that their view is considered and valued” (Participant two). Additionally, the neutral facilitator
was seen as providing a “...balancing/moderating influence” (Participant one) to the process. Further to this, the facilitator requires the “...skill to facilitate that discussion without fallout or damage...(and) produce a positive result” (Participant two).

Another significant aspect to having neutral facilitators, was that the participants had found that they were able to create an “...atmosphere that is not intimidating or patronising...(and have a) willingness to sit down...(and) listen to what everyone was saying” (Participant five).

Having a skilled facilitator created a non-threatening environment in which participants felt safe in expressing their views and opinions. Participants reported feeling that “there was no threat” (Participant six). “...(I) felt safe there. I don’t think any of us felt threatened” (Participant one).

6.4.3 Team functioning

This theme pertained to the fact that participants often found that one of the unexpected benefits/rewards from completing a process mapping exercise was that it often led to an improvement in team functioning.

A number of participants described that one of the more surprising outcomes from their workplace participating in a process mapping initiative was that they experienced an improvement in team functioning, in their respective workplaces. Participants reached the conclusion that “…the end result is not necessarily the better benefit, it’s the process of getting there…I think that it promotes good team work” (Participant one).

A number of participants prior to their involvement in process mapping exercises described a workplace setting where there was “… not a lot of positive
communication” (Participant one) however, as a result of members in their workplace sitting down and clarifying their workplace processes, a greater sense of team unity was present. For participants “...one of the most valuable things that came out of it...(was) an appreciation of what everyone did.” There was a sense that this appreciation and understanding of what each member of the team did “...has resulted in the production of an IDT that is functioning, it created the team environment” (Participant one).

For some of the participants, being involved in an activity that included a significant component of team consensus was at times particularly challenging, given past conflicts that had occurred:

“(Y)ou know, traditionally we haven’t always got on that well, the two services” (Participant four).

The positive side to this situation was that it necessitated the team working together to create a consensus document. For these participants “…the best thing that came out of it was the fact we did something together and in the end agreed” and that one of the lasting results of this experience has been that there is now “...communication between the team and I think that has aided the patients” (Participant five).

6.4.4 Format outdated

This theme is concerned with a sense of inadequacy and out-datedness with the format that the completed process mapping exercise was presented in, and raised the need for updating this.

A number of participants criticised the fact that the end product provided to the user had not “…particularly moved with the time” (Participant seven). The existing practice involved presenting the completed process maps to the
“process owners” in a paper format. This completed document is often large in nature. A number of participants identified a degree of dissatisfaction with receiving the completed format in this manner, describing it as “...lack(ing) imagination at the moment; not dynamic enough...(and) boring” (Participant six). Participants preference was towards an end product that was based on “...an electronic version rather than having wads of paper” (Participant three).

It was felt that there was a need for a more innovative approach in presenting the completed process mapping. It was suggested that time should be spent reviewing and updating the current format, with the Business Process Analysts being challenged to not “...get scared of changing the package either” (Participant six). It was further identified that the format needed to be made more “...user friendly” with the completed documentation requiring greater “...availability...” and presence, in that it “...needs to be everywhere” (Participant six). For example it was suggested by participants that the completed document be published in a location such as the intranet (a website available in-house to CDHB employees). It was felt that by making the process documentation more available to staff, they would refer and utilise the information that existed within them to a greater degree. Further, some participants felt that by maintaining the status quo, there was a risk that the process mapping would end up being “...just another document...” which ended up being replaced “…in two years time (when) something else come(s) out” (Participant six).

6.5 Summary

Nine themes which pertained to the issues of acceptance and feasibility, along with four “other” themes which fell outside the areas of acceptance and feasibility were identified from the interviews. Each theme and its subsequent subthemes were defined and illustrated with specific examples from the
interview transcripts. Acceptance and feasibility were identified to be influenced by a combination of factors including: individual, culture, organisation and resource.
7 Discussion

7.1 Introduction

This chapter will bring together the study findings and relate them to the available literature. It will attempt to put this piece of work in context with work that has gone before it, identifying and discussing any areas of similarity, while considering where this piece of work stands in the overall picture and what, if any, lessons learnt can be extrapolated to health. Finally it will identify and discuss the limitations and strengths of this study.

Process mapping has long been used within both the manufacturing industry and wider business community, as a tool to develop greater understanding of core business processes. It is widely understood that as organisations grow processes can become buried within the complex network of people and systems and this is particularly true of many government departments (Anjard 1998; “Process Mapping,” 2002). Process mapping is seen to provide the business community with a means of developing more efficient and effective business practices.

To date the evidence to support the ongoing use of process mapping is largely derived from the business community (Mc Evoy, 2004; Savory and Olson, 2001). However there is a growing body of work emerging from the health sector which supports using process mapping as a component of health quality improvement initiatives. The existing body of evidence has focused on what process mapping contributes to the overall improvement initiative (King et al., 2006; Mc Evoy, 2004; NHS, 2002; Quality Management and Training Ltd., 2004; Welch, 2002). A gap exists in the literature concerning how process
maps and process mapping initiatives are perceived by the individuals who
use them and assist with developing them.

At the outset of this study, little was known about acceptance of process
mapping in the CDHB, and whether or not CDHB employees considered
process mapping to be a feasible tool for representing health care processes.
This study was the first attempt made at formally reviewing process mapping
within the CDHB. Particular attention was paid to the level of acceptance
towards process mapping within the organisation and the feasibility of using a
process map to represent health care processes.

The design of this study was individualised to this project. All of the
measuring instruments were developed specifically for use in this study and
considered best for testing the study aims. As this was the first attempt within
the CDHB to develop an understanding of the acceptance towards and
feasibility of using process mapping, there was no previous work to
benchmark this study against, and no trialled measurement instruments to
consider incorporating into the study design. The use of a questionnaire was
based around the assumption that it would be one of the most effective means
of obtaining a representative sample across the CDHB. The use of semi-
structured interviews was based on the understanding that they would give a
greater richness and meaning to the experiences of being involved with
process mapping.

A deliberate attempt was made to ensure that representation was received
from all divisions within the CDHB who had previous involvement with
formalised process mapping. A stratified sampling method was selected.
Strata groups were predefined and preselected. The use of a stratified design
intended to provide accurate representation across all divisions and minimise selection and sampling bias. The number of respondents selected was based on statistical analysis which represented a sufficient number to capture the required data and minimise bias.

The demographics of the study respondents are, on the whole representative, of the New Zealand health workforce (Ministry of Health, 2006), that is, the majority of the sample was female, of New Zealand European descent, and aged between 40 – 55 years of age. The response rates across the strata groups was approximate 40%, with the exception of the group “Others” (a group representing a variety of divisions, including laboratory services and corporate) whose response rate was 80%. This high response rate is attributed to a 100% response rate from the Business Process Analysts sampled in this study.

The overall findings of the study have demonstrated a response towards process mapping that is extremely positive. This high degree of support towards the use of process mapping within the CDHB is somewhat surprising, given that high levels of staff scepticism have been identified when staff is faced with the concept of representing a patient’s journey in a process map (Welch, 2002). In accordance with this, it was anticipated that a significantly more mixed response to process mapping would have been obtained, particularly when prevailing factors such as organisation culture are taken into account. This culture is often viewed as highly resistant to change, and manifests itself in the form of passive resistance. The reason for such a positive response towards process mapping could be attributed to any one of a number of different factors.
Firstly, the positive response could be attributed to the fact that the study respondents were people that could be largely classified as supporters of process mapping within the CDHB (sampling bias). It could therefore be hypothesised that these individuals were more likely to have taken the time to participate in the study in the first place. On the other hand people who were more negative towards process mapping, and didn’t consider that it had anything to offer themselves or the organisation, could have been more likely to voice their dissatisfaction with process mapping by choosing not to participate in the study.

Secondly, high levels of acceptance could be attributed to the length of time that formalised process mapping exercises have existed in parts of the organisation. As supported by the literature (Welch, 2002), there is the potential for a cultural shift to have occurred, as the staff progressed from initial feelings of scepticism towards process mapping, to accepting and recognising what process mapping offered. Thus, it could be suggested that with time, process mapping has become ingrained in the organisation culture. This hypothesis is supported by the differing levels of acceptance towards process mapping across the divisions. Those divisions (Mental Health division and Older Person’s Health) that were the first to be involved in formalised process mapping initiatives, generally recorded lower levels of support to process mapping than those divisions where process mapping was a newer initiative (Christchurch Public Hospital and Women’s Health).

While the overall response indicates high levels of acceptance towards process mapping it is interesting that the more mixed responses were received from the two divisions who had the most experience with formalised process mapping; Mental Health and Older Person’s Health divisions. These two divisions were more widely sampled due to process mapping having been
applied more extensively and for a significantly longer period of time. Overall, the responses received from these two divisions were still in favour of process mapping. There were however wider ranging satisfaction levels reported, with the highest levels of disagreement towards process mapping reported across these two divisions. These two divisions would on the surface seem to represent a more balanced view of process mapping across the CDHB. The divisions to which formalised process mapping was newer (Christchurch Public Hospital and Women’s Health) made up only 15.4% of the sample population, with a combined response rate of 45% (a rate which was consistent across the divisions). The rate of agreement across these two divisions was significantly higher than that of Mental Health and Older Person’s Health divisions.

When considering the implications of these findings, it is suggested that future studies should focus on sampling a greater number of individuals across the divisions where process mapping was newly introduced (at the time of this study). The purpose of this would be to ascertain whether the responses received represented a sampling bias, in that respondents responded to the novelty of being involved with something new, enjoyed their opinions being sought, listened to, and valued. Alternatively, it could be ascertained whether increased exposure to a greater number of participants provides a more balanced view of process mapping. If response rates were to remain high, consideration should be given to factors that could contribute to a high acceptance response. One possible factor is a differing approach to the roll-out of process mapping across the organisation. Historically, process mapping was introduced as a costing exercise (Mental Health division) and received very little buy-in. As it was progressively introduced, it was used as a tool for quality improvement, but in some instances was still introduced as a management directive, with little thought going into how it was sold to
various work places (Older Person’s Health division). More recently, process mapping has been introduced as part of collaborative review processes, with considerable time and energy going into introducing and selling the concept to its intended audience.

Overall the findings illustrated that process mapping was considered to be a feasible tool for documenting health care processes. The divisions where process mapping was more entrenched returned lower levels of support (overall the response was still largely a positive one) regarding the feasibility of using process mapping to capture health care processes. Whereas the divisions where process mapping had more recently been introduced returned higher levels of support regarding the feasibility of using process maps to represent health care processes. As with the notion of acceptance, the issue of feasibility of using process maps was considered along similar lines, that is, was the difference due to a limited exposure to process mapping or had significant improvements been made in the implementation cycle.

When considering the findings by profession, the following notable points are raised. Firstly, the sample is under-representative of the medical profession (4.6%) and those represented are generally less positive regarding process mapping. This is consistent with the observed degree to which the medical profession has involved itself in process mapping initiatives across the organisation. Any potential contamination bias to the findings by this group can be shown to be not present in the findings when the results are considered from the perspective of what divisions that these individuals come from. The majority of this group are from the “Other” division and it has been noted that this group was one of the most positive towards process mapping, with the remaining medical staff member coming from the Older Persons Health group, a group that’s responses when considered by division again are still
largely supportive towards process mapping. Secondly, the nursing profession only made up 18.5% of the sample, while they are the largest professional group across the organisation. Lower rates of participation could be attributed to the pressures which exist on both of these professional groups in respect to the existing demands on their workloads and time. Asking them to participate in another task could only add to the pressure of these overstretched professions. The biggest number of responses (N=20) came from the Allied Health Professionals a trend that has been noted in other organisational studies (Canterbury District Health Board, 2004).

Across the professional groups, nursing had the lowest agreement levels regarding the acceptance and feasibility of process mapping. This would suggest a lack of buy-in to the process. It is also possible that this could be attributed to the culture of constant change that has existed within the organisation for a considerable time, and that this culture has led to process mapping being viewed as a another add-on to an already overstretched workforce. This is particularly so for the nursing population who represent a significant proportion of the overall staffing population. It is possible that the nursing profession viewed process maps as something requiring more reading and documentation on a daily basis, when it has already been suggested that “too much” clinical time is taken up with tasks that do not directly involve the patient. Another factor that could be attributed to a lack of buy-in, is the manner in which the process documentation is handed over to the owners. If little attention is paid to how process documentation can be effectively incorporated into the working day, it is unlikely that any buy-in or ownership will result. The groups identified as “management” and “other” recorded the highest level of support within the CDHB. Results obtained from the group identified as “others” consisted of the Business Process Analysts. It can be assumed that this group would have a highly favourable attitude towards
process mapping as it is a core component of their role and responsibility within the organisation.

Of the themes from the questionnaire that were quantified, the theme “detail” warrants further discussion. The questionnaire respondents felt that process maps contained too much detail. Process maps are only seen to be of benefit when they are easily understood, and not too detailed in content. They should provide the reader with a clear understanding of the process referred to, after viewing the map (Webb, 2000).

From the seven interviews thirteen themes emerged. They were categorised into three groups: acceptance (5), feasibility (4), or other (4). The identified themes and definition of these themes were largely consistent with those that had been identified and discussed in the earlier chapters of this work.

The findings from the interviews identified the following themes as impacting on the acceptance of process mapping within the CDHB: mapping were influenced by being involved with process mapping, how an individual processed information, and the prevailing passive-resistant culture that is known to exist within the CDHB. The acceptance of process mapping across the CDHB was attributed to the ability of process mapping initiatives to expose protectionism within the workplace and the degree to which the ownership of the process was held by all of the individuals of the workplace.

Participants linked acceptance of process mapping to having had involvement with process mapping initiatives. Participants claimed that this involvement was a critical factor in developing and shaping their overall opinion of process
mapping. Involvement with process mapping initiatives was felt to increase the participants overall view of what process mapping offered. This is supported by Welch (2002), who identified that people are often sceptical about process mapping at its onset, but as the person recognises what process mapping offers, this scepticism changes to enthusiasm and acceptance as the results become evident. Participants of this study reported that at the outset of process mapping, they had some initial misgivings about the value of being involved in such an activity. They saw it as merely another job that someone created for them and an activity that had little to offer in the health setting. As the mapping progressed, participants reported feeling amazed at what they discovered about their workplace processes as a result of documenting the processes. The exercise provided the participants with an opportunity to reflect on things that are done automatically as part of their job and answered questions that arose during the course of their normal work practices.

Another theme linked to the overall acceptance of process mapping is how participants processed information. It is widely acknowledged that one of the strengths of process mapping is its ability to present information, when well constructed, in a visual picture that will replace many pages of words; this visual representation is seen as a means of providing people with the ability to efficiently analyse and agree on routes for improving processes (Denton, 1995; Paradiso, 2003). The visual presentation of information in an easy to read process map, was identified by participants as a useful tool for visual people, as it eliminated the need for a substantial amount of narrative. The majority of interview participants reported that their positive response to process mapping was strongly influenced by their preference for diagrammatic representation of text.
Acceptance of process mapping has been closely linked to establishing “ownership” of the processes. Process ownership needs to include people from every level in an organisation. For process mapping to succeed, a need exists for all participating departments and individuals to be informed of the purpose and existence of process mapping initiatives (Anonymous, 1999). If this environment is created, acceptance will occur; if not, participants identified that people would only pay lip service to the process mapping. In their experiences, process mapping was more readily accepted in their workplace if everyone had been involved in the process. This was in opposition to the participants who identified a lack of ownership and acceptance in their work places due to a sense of process mapping having been forced on people.

Another aspect of ownership that was identified by interview participants was the ownership of the process itself. Interview participants reported that they developed a strong sense of ownership throughout the process. At all stages of the process they sense that the facilitators made every effort to ensure the team were clear that they owned the process.

The ability of process mapping to expose issues of protectionism within the workplace was also a factor which attributed to the acceptance of process mapping in the eyes of interview participants. Participants spoke of how they felt that the process exposed protectionism of workplace processes, from cases where managers had out of date ideas and/or beliefs on how processes occurred and were reluctant to acknowledge the change; through to small teams within a workplace knowing how the unit functioned to only one person having responsibility for certain processes.
The prevailing passive-resistance culture which is often associated with health settings has been identified both in the literature and by interview participants as a factor which influences the acceptance of process mapping across an organisation. In any organisation it is recognised that change and development are constant factors (Jackson, 2004). As organisations evolve, so too do the processes, and at times the processes are often overwhelmed by the rate of change (Quality Management and Training Ltd., 2004). Proposed change results in people questioning the need for change and at times resisting any of the changes proposed, whether or not they directly impact on them (Pfred, 1996). Interview participants spoke of how they sensed that people within their workplaces were sick and tired of change and at times people perceived process mapping as another challenge to how they did things. This would often lead to people expressing the resultant anxiety through passive-resistant behaviour. If the extent of the anxiety from proposed change and investment in existing processes is not accurately estimated, process mapping initiatives are likely to fail. It has been identified that this situation can be avoided when the people concerned feel that they have a vested interest in the process (Pfred, 1996).

Participants spoke of how they felt that people needed to be encouraged to view process mapping as an opportunity to look at the good aspects of practices rather than as a challenge to how things are done. Participants believed that process mapping was not necessarily about beating people over the head with change, but confirming the good things that were occurring in daily practice. It is claimed that documented process maps can become an agreement between employee and employer on how to do a good job, rather than a challenge to how things are done, and as a driver for change (Lurz, 1998).
The findings from the interviews identified four themes as impacting on the feasibility of using process maps to represent health care processes within the CDHB. They were: how the completed process maps were applied in the workplace, the time involved in documenting the workplace processes, the challenge within the workplace of maintaining and reviewing the process maps, and the need to get the team composition right.

Interview participants linked how the process maps were applied in the workplace to the feasibility of using them to represent health care processes. There was a degree of concern expressed about the limitations that arose when applying the process maps to the workplace setting. Participants urged that the process maps should be viewed as a guide to practice and not as something that could cover every eventuality. It was suggested that users needed to apply a degree of flexibility to the use of the process maps, and deviate from the described process if the situation warranted it.

The other limiting factor identified was how a person’s personality could influence how a process map was applied. There was concern expressed by participants, and supported by the literature, that if the user’s personality was obsessional in nature, or if they were “black and white” thinkers, they may see a documented process as being something set in concrete, rather than seeing it as a prompt or guide to assist clinical practice (Staccini et al., 2005). It was felt that this created the potential for people to overlook, or be unable to respond to, an individual’s needs.

The challenge of implementing a review and maintenance process was identified as a further factor impacting on the feasibility of using process maps. This difficulty is highlighted in the literature as one of the problems
associated with process mapping. While participants spoke of the desire to consistently use and update the processes, rather than having them sitting around on shelves gathering dust, the reality of developing such wide-spread ownership across the whole work place, was seen as extremely daunting. It has been observed that, the possibility exists at the completion of process mapping that people will move onto something more pressing and the process maps will sit unutilised, while employers and employees complain that people don’t have any understanding of correct processes (Ensby, 1997; Vollmer and Phillips, 2000).

The issue of the amount of time spent in getting process maps right was raised in the interviews and literature. The process of documenting a process map is lengthy and it is rare that 100% accuracy will be achieved on the first attempt (Collins, 1997; Ensby, 1997; Paradiso, 2003). Participants explained how the process was a gradual one, beginning broadly and then redefining and sharpening the process map as required. The development of the actual process map was not considered by participants to be the time consuming aspect of the process, rather it was that the process required a substantial amount of review, reflection, and refuting what was suggested, before agreement could be achieved. It has been suggested that, by attempting to complete the process mapping faster, one runs the risk of diluting what the process offers in terms of improving team communication and functioning. By attempting to complete the process faster, the opportunity to take the process documentation back to the entire team and involve them in the process, would be lost.

The other aspect raised regarding the theme of time, was concerned with how participants struggled with the demands that process mapping placed on them in terms of time, when they were already feeling over-stretched and
burdened. Participants identified the need for an external party to acknowledge that it was permissible to take time out of their busy clinical practices and engage in a review process. Participants reported time pressures led to them losing the ability to comprehend the bigger picture. By having a clear understanding of clinical processes there was an opportunity to improve the services that they delivered to patients.

In order to achieve the desired outcome, the composition of the team must be an accurate and unbiased representation of the entire workplace. Broad based participation is critical and team composition should ideally include someone from each level of the organisation (Pfred, 1996). It has been suggested that process mapping is most likely to succeed when this occurs (Savory and Olson, 2001). Various factors to consider in team selection include whether the individual has pre-existing knowledge of process, credibility and the mandate of their work area to serve as a spokesperson, and the ability to comprehend the bigger picture (Anjard, 1998). It is also felt the creation of a team approach will create a sense of partnership within the organisation.

The findings from the interviews identified four other themes that were considered to be of relevance to the study. The first theme concerned the degree to which participants were familiar with process mapping. Four participants had been involved with process mapping on more than one occasion. The remaining three participants had only one experience with process mapping. Several of the participants voiced dissatisfaction with the current format, claiming it was outdated and had not kept up with technology. The other two themes identified were the impact that the facilitator has on the process mapping and how one of the unexpected end outcomes experienced was an improvement in team functioning.
An important issue related to the outcome is having a neutral and unbiased “outsider” to facilitate the process. It is also considered useful to have someone outside the workplace facilitating the process. This person brings a different perspective to the group; is able to empower all members of the group; and most importantly, is considered neutral. A neutral facilitator should not get involved in the politics of the workplace, attempts to avoid taking sides, and is skilled in asking questions which highlight the “truth” of the situation (McEvoy, 2004). Having an outside facilitator is key to actually getting the process mapping to occur, and would otherwise be unlikely to occur given the expectations that exist on people who work in a health context. A facilitator guides the team through the process, keeping them on track while avoiding getting bogged down in irrelevant information.

One of the surprising outcomes identified by both interview participants and the literature, is that by increasing understanding of core processes, the team functioning has been observed to improve (Paradiso, 2003; Pfred, 1996; Savory and Olson, 2001). Team functioning is known to improve within an organisation when people work on something together and agree to the outcome, which in turn benefits the patients that these individuals work with. The improvement in cross functional communication within an organisation has been attributed to offering teams an experience which provides them with the means of analysing and communicating understanding of work-flow, while being involved in collaborative activity (Paradiso, 2003; Pfred, 1996; Savory and Olson 2001).

7.2 Limitations

With a limited response rate from some of the predefined strata groups, it is difficult to make concrete statements regarding the findings. This limitation is
specifically concerned with the size of some of the strata groups in terms of number of respondents and the ability to make generalisations and comparisons about the groups rather than the overall response rate. To obtain an increased response rate, the following alternative approaches could have been utilised: broadening the inclusion criteria to include any employee with previous experience of process mapping, or by adopting a different approach to sampling. Instead of distributing questionnaires via the professional leaders or quality co-ordinators, potential respondents could have been targeted at the point of involvement with process mapping exercises, that is, the various workplaces could have received questionnaires as part of the review process at the end of the process mapping initiatives. Adopting this approach would have given access to a greater number of possible participants and would have ensured that the experience was fresh to the individual. A drawback of adopting this approach would have been the length of time required to collect the data set and it would have excluded individuals from divisions where process mapping had been more extensively applied previously, but was currently in a maintenance phase as opposed to a developmental one. Adopting this approach would also limit the opportunity for participant reflection. During the interviews, it became evident that participants’ opinions towards process mapping had been shaped via a reflective process.

The small number of responses received across some of the divisions made it difficult to complete full statistical analysis on that group’s data set, limiting the analysis of data to be largely descriptive in nature rather than comparative. Due to the small numbers, quantitative analysis was not able to determine whether the relationship between the variables reached statistical significance or not, and whether such significance was in fact rare or not. The sample set would have benefited from being enlarged across all of the strata groups to enable more thorough analysis with a higher number of responses. An
alternative approach to the study could have been the selection of one division or clinical workplace within the organisation as the core focus of the study, with the findings from that group being extrapolated across the entire organisation. Such an approach may have provided a starting point in reviewing process mapping across the organisation. The obtained results and issues identified could have then been used as a guide for establishing hypotheses to confirm or refute across the whole organisation.

The adoption of two different methodologies for this study was a deliberate one, however, it can be argued that this approach, if not implemented successfully could divert the focus from either of the methodologies and possibly dilute the findings as a result. In essence, the use of two methodologies means that there is only a partial focus on either one, and that neither of the methodologies can be explored to their full potential. By choosing to focus the study design on one methodology the investigator may have been better able to establish firmer conclusions from the study findings. The use of both methodologies was considered pertinent to the shaping of future study directions in this area. If the area of process mapping acceptance and feasibility had been more extensively studied in health, consideration could have been given to which methodologies previously provided the best outcome. The study design could then have incorporated these methodologies into its study design. It is felt that the proper use of both methodologies in conjunction with one another would add greater context and precision to the data set and allow for a greater richness to be present in developing an understanding of the lived experience of process mapping in the CDHB.
7.3 **Strengths**

One of the strengths of this study has been the investigator’s familiarity with the area being studied. The degree of familiarity with both process mapping and the CDHB has enabled the investigator to have a clear understanding of the potential issues around studying this topic and assisted with identifying strategies to reduce these risks. Access to pertinent information about the wider field of process mapping and people involved with process mapping was available and easily accessible because of the investigator’s contacts in this area.

The widespread level of exposure to process mapping across the CDHB and the good response rate to the questionnaire of 50% was of benefit to this study. This enabled the investigator to broadly study process mapping and its impact across the entire organisation. This provided the investigator with the potential for obtaining meaningful and significant results that related to the whole organisation, rather than having to study one particular area of the organisation and then extrapolate these results across the wider organisation.

The openness of interview participants provided strength and robustness to the qualitative results. The willingness of the participants to partake in the interviews and to contribute as they did provided richness to the experiences of being involved in process mapping that would not have been obtained through purely statistical analysis.

The fact that this study is not a pilot can be considered a strength, as it looks at exactly how process mapping is used and applied across the CDHB, and provides some meaningful data regarding the application of process mapping for the CDHB. It also allowed for the study aims to be considered across a large and diverse sample size.
The findings obtained from the study benefit the Business Process Analysts who are responsible for facilitating formalised process mapping in the CDHB. For the first time, this group is provided with evidence regarding process mapping that is not just anecdotal in nature. Findings obtained provide them with some valuable feedback on how process mapping is viewed across the organisation and identifies some particular issues, such as the current format, which could be addressed to enhance the product and service delivered to the CDHB.

The fact that the findings obtained and issues identified over the course of this study appear to collate with the findings and issues identified in studies or work completed across the wider community (e.g. manufacturing, business and engineering), as discussed and illustrated throughout the course of this discussion is potentially of significant benefit to the health sector. This commonality would suggest that the potential exists for the health sector to extrapolate a significant amount of what is known about process mapping from work completed in the wider community and apply this information to the health setting, particularly in using the existing strategies as a beginning point for dealing with the issues raised in this study. For example two of the pertinent issues identified during the study which were attributed to having an impact on the overall acceptance of process mapping were: buy-in and ownership. These two areas have been well documented in the literature, as previously discussed at length in this piece of work, and include specific strategies for achieving buy-in and ownership (Adams, 2000; Lurz, 1998; Merrill, 1997; Pfred, 1998), the practical approach for the health sector would be to use these strategies as a starting point when it came to addressing the issues of buy-in and ownership. Furthermore the lessons learnt from the wider
community may also assist with defining future directions for study within the health sector.

7.4 Summary

In summary it has been identified that there is significant literature to support the findings of this study, further to this the study findings provide support for the ongoing use of process mapping across the CDHB. The findings obtained during the course of this study largely support the initial aims of the study. It has been determined that across the CDHB, process mapping is considered a feasible tool for documenting health care processes and that on the whole, there is a surprisingly high level of acceptance towards using process maps to document health care processes.
8 Conclusion

8.1 Introduction

This chapter will reiterate the key study aims and consider the degree to which the study has achieved these or identify the factors that prevented the aims from being accomplished. It will summarise the key study findings and relate how these can be attributed to achieving the aims of the study. Finally it will discuss the future directions that warrant further work in this area.

This study aimed to examine the issues of acceptance and feasibility in relation to the development and application of process maps in a health context. The health setting considered for this study was the Canterbury District Health Board. The study examined these issues from the five following objectives. Firstly, the study aimed to complete a generic review of process mapping and examine how process mapping has been applied in a health context. Secondly, it attempted to gain an understanding of what process mapping offered to patients, the wider organisation (CDHB) and staff (i.e. the study participants). Thirdly, the study attempted to explore, from the perspective of the participants, the extent to which they believed that the completed process maps accurately represented the process that they had attempted to capture. The fourth aspect considered, was the participants’ degree of satisfaction with the process mapping tool currently applied within the CDHB setting. Specific consideration was given to the participants’ view on the usability and usefulness of the aforementioned tool. The fifth and final aspect of the study was an exploration of the experiences in documenting and applying process maps to service delivery in the CDHB. These experiences were considered from the perspectives of the process mapping facilitator and the process “owner”.

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A generic review of process mapping and its application to health was completed. The review process highlighted that the application of process mapping in a health context is still in its infancy. While process mapping was originally developed for use in the manufacturing and services industries, as a tool it is widely known and applied within the greater business community. It has been shown, to clearly provide businesses with an overview of the complete process. This overview is seen to provide clarity and insight into what are at times complex work designs. It has been suggested that process mapping offers the health services an opportunity to consider systems and/or experiences from a patient’s perspective. The ultimate goal of process mapping in the health context has been identified as a reduction in the length of the patients’ journey (i.e. reducing the amount of time that any given individual spends in the health system).

This study utilised two forms of media in attempting to develop an understanding into what process mapping offers in a health setting. The first measure was a 16 question self-report questionnaire that had been specifically developed for this study. Possible respondents were identified from two groups; the facilitators and the process “owners”. All respondents were expected to have had involvement with the process mapping tool described in Appendix 1, within the previous 12 months. The second data source was from semi-structured interviews, which were conducted by the investigator on individuals who expressed an interest in being interviewed as a result of completing the questionnaire.

Feedback received from the questionnaires gave the following insights into people’s perceptions of what process mapping offers in a health setting. The majority of respondents identified that; they found the visual representation of a process map to be useful, a process map is a useful tool to capture health care processes, process maps have increased the individual’s understanding of unit processes, the maps are readily accessible to individuals in the unit,
process maps need to be updated to maintain an accurate reflection of the process, process maps add value, have successfully incorporated health care standards, have been useful in improving service delivery, and are able to accurately capture the processes of the unit.

Questionnaire respondents were asked to identify what they perceived to be the associated benefits and drawbacks of process mapping. Respondents perceived that the benefits of process mapping and process maps included the following: they had an element of logic to them, provided standardisation and suited individual learning styles. The perceived drawbacks to process mapping included: the amount of time that is involved with process mapping, process maps contain too much detail or conversely over simplified the process. Respondents’ perceptions concerning the amount of review involved in process mapping were evenly split in regards to whether or not it was seen as a drawback or benefit.

In attempting to develop an understanding around participants’ perceptions of whether or not they believed the completed process maps accurately represented the process that they had attempted to capture/document, questionnaire respondents were asked to indicate whether or not they agreed with this. The majority of respondents indicated a strong degree of belief in the ability of process maps to accurately reflect the intended process. Further support was added to this by the interview participants who identified that process maps do have the ability to accurately reflect the intended process. Interview participants however cautioned that the maps only truly reflect the process when they are regularly reviewed and maintained.

Seven interviews were conducted over the course of this study. The interviews were included in the research design in an attempt to provide more detailed accounts of experiences gained from involvement with process mapping. Perspective was sought from both the facilitator and process
Interview participants identified a degree of dissatisfaction towards the process mapping tool currently applied within the CDHB setting. Participants identified that while the tool was still useful and usable, they felt that it had become outdated and was inadequate in its current format. They identified the need for transformation to ensure the ongoing usability and usefulness of the tool. Evolving the tool from its existing paper-based format to an electronically accessible one (a move that would be in keeping with the electronic advances that have occurred since the late 20th Century) was proposed as a means of improving its usefulness and usability.

Interview participants identified nine themes which pertained to issues of acceptance and feasibility. Themes of acceptance included; how the process of involvement in a process mapping exercise shaped the opinion of the individual, the influence of ownership and process mapping, how process mapping exercises exposed levels of protectionism within teams, the significance of how individuals process information, and the existence of passive resistant culture. Themes concerned with the issue of feasibility included; how process mapping is applied, the need for ongoing review and maintenance and the challenges to achieving this, the need to spend time getting the process right and acknowledging the need to take time for and receiving the support to engage in self-review and how group membership influenced the outcome. Other themes to be identified, but which fell outside the acceptance and feasibility aspects, included the degree of familiarity with process mapping, facilitation (in particular, how facilitators mediate the process and the significance of neutral facilitators), how process mapping contributed to positive team functioning, and finally the identified concern that the current format is outdated.

The study findings, as previously discussed, appear to indicate a level of acceptance towards process mapping in the CDHB environment. On the whole, questionnaire respondents and interview participants indicated a
positive level of acceptance towards the use of process mapping in the CDHB. Findings of this study are supported by the reviewed literature. Both the findings and evidence are in agreement in regard to factors which contributed to or distracted from the ability of the process mapping to be accepted within any given setting.

Once again, the findings of the study, outlined in the discussion, appear to support the notion of feasibility in relation to utilising process maps to capture health care processes in the CDHB. Study findings parallel the findings in the literature in relation to the feasibility of documenting health care processes in a process map.

8.2 Summary

In conclusion, this study should be viewed as a starting point in formally reviewing process mapping in the CDHB. It has attempted to establish an initial degree of understanding concerning the acceptance and feasibility of using process maps to capture health care processes in the CDHB. This study has raised some points for future/further consideration/clarification. It is felt that there would be benefit in conducting a review of the current format (refer to Appendix 1) and identifying possible solutions to update the existing format. A review of this nature would address some of the issues raised during the course of this study. Further sampling of the divisions, where process mapping had been recently introduced at the time of this study, is suggested to confirm or refute the high levels of acceptance obtained from these divisions in this study. If further study confirmed results obtained from this study, it is suggested that it would be of interest to look at how process mapping initiatives have been introduced to various workplaces to establish if this is a factor in influencing acceptance. Reviewing the approaches used to incorporate process documentation into workplace practices and identifying any short comings of these approaches is seen as a possible means of
identifying solutions to address the identified difficulties of maintaining the process documentation and keeping it reflective of workplace practice. It is suggested that further time needs to be devoted to exploring the constructs of “buy-in” and “ownership” as a means of identifying strategies to achieve greater rates of “buy-in” and “ownership”. Targeted sampling of professions, who had low participation rates (medical and nursing) in this study, is suggested to enable more detailed comparisons across profession groups. Finally, establishing an ongoing formalised review of process mapping in the CDHB is considered pertinent to identifying ongoing issues and to demonstrate whether process mapping remains applicable for use in the CDHB.
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Appendix 1 - Explanation of Process Maps

- **Title**
  - Shows the tasks that occur for the process step and the standards by which they occur.

- **Process**
  - The Process starts with a preparation box. It records the trigger, the activity that has to occur for the process to start.

- **Tasks/Standards**
  - Put in here bulleted pointed actions that occur within the this process step.
  - Consider the following standard questions:
    - What are the tasks?
    - Within what timeframe does the task have to occur?
    - Are there any Policies, Procedures or standards, National or organisational?
    - How is it documented?
    - Is the task standardised?
    - Who is responsible for which tasks within this process step?

- **Who**
  - Shows the title/role of the person responsible for the process step.

- **Decision Box**
  - The question needs to be smart. Think about it, then it’s not always the first one that springs in mind.
  - A Question can have only a Yes and No answer!

- **Process Step connectors**
  - Showing the path!

- **Terminator**
  - The terminator indicates the end or an end to this process, and will give you the name of the pre-defined process that follows on from this one.

Appendix 2 - Examples of charting techniques

1. block diagram

![Block Diagram Image]


2. standard flow chart

![Standard Flow Chart Image]


3. functional flow chart

![Functional Flow Chart Image]

4. geographic flow chart

GEOGRAPHIC FLOWCHART SAMPLE FOR EMPLOYEE REVIEW PROCESS

Appendix 3 - Types of process maps examples

1. Example of a Operation Process Chart

2. Example of a Flow Process Chart

3. Example of a Man and Machine Process Chart


4. Example of a Two-handed Process Chart

![Diagram of a Two-handed Process Chart]


5. Example of a Cross Functional Flowchart

![Diagram of a Cross Functional Flowchart]

Retrieved 19 March 2010 from
http://www.edrawsoft.com/images/flowchart/swimlane%20flowchart.png
Appendix 4 – Information sheet, consent form and questionnaire

An examination of the feasibility and acceptance of process mapping (flowcharts)* in the Canterbury District Health Board Setting

Information Sheet for Participants

*NB: A PROCESS MAP REFERS TO A FLOWCHART AS USED IN THE SERVICE PROVISION FRAMEWORK

Thank you for showing interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you of any kind and we thank you for considering our request.

This project is being undertaken as part of the requirement for the Masters in Health Sciences.

This study aims to examine both the feasibility and acceptance of process mapping (flowcharting) in health care delivery within the Canterbury District Health Board (CDHB). It intends to:

- provide an initial insight into people’s perceptions of what process mapping (flowcharting) offers the CDHB
- explore whether or not process maps (flowcharts) accurately and in a user-friendly style document the intended process
- explore the personal experience that an individual has when developing/using process maps

Individually from various clinical backgrounds from the Mental Health, Older Persons Health, Women’s Health and Christchurch Hospital are being invited to participate in this study.

This study involves two aspects.

1. Completing the enclosed questionnaire and consent form - this will take approximately 20 minutes of your time to complete.

2. An optional interview. The questions in this interview will be developed from the results of the questionnaires. Face to face interviews will be conducted over 2 sessions; the first session will involve a 1-hour interview developed from the completed and collated questionnaires. This interview will be audiotaped and later transcribed. A subsequent session will be required for you to verify and check the transcription from your original interview.

Should you agree to take part in this study you will be asked to complete the enclosed consent form and questionnaire and return it to Sonya Morice in the enclosed envelope. If you are interested being considered for the optional interview, please complete the attached expression of interest form and return to Sonya Morice.
Please be aware that you may decide not to take part in this project without any disadvantage to yourself of any kind.

You may also choose to withdraw from this project at any time and without any disadvantage to yourself of any kind.

Data Collection and Analysis
Data will be collected from two sources, firstly from a self-report questionnaire developed for use specifically in this project and secondly from face-to-face interviews.

Both quantitative and qualitative data analysis methods will be utilised. Quantitative analysis will be performed on the data obtained from the self-report questionnaire. This data will also be collated to form the basis for developing key interview questions. Descriptive (qualitative) analysis will then be performed on the text of transcribed interviews.

Results of this project may be published but any data included will in no way be linked to any specific participant.

You are most welcome to request a copy of the results of the project should you wish.

The data collected will be securely stored in such a way that only those mentioned above will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by the University’s research policy, any raw data on which results of the project depend will be retained in secure storage for five years, after which it will be destroyed.

If you have any questions about this project, either now or in the future, please feel free to contact either:

Sonya Morice or Dr Sue Luty
Masters Student Senior Lecturer
Department of Psychological Department of Psychological
Medicine Medicine
Christchurch School of Medicine Christchurch School of Medicine
University of Otago University of Otago
Ph (03) 3377899 Extn: 66496 Ph (03) 3720400
sonya.morice@sph.govt.nz sus.luty@chmeds.ac.nz

This project has been reviewed and approved by the Otago University Ethics Committee

______________________________________________________________________________________________

I am interested in being contacted at a later point in regard to completing an interview

Name........................................

Contact details......................................

Signature........................................
An examination of the feasibility and acceptance of process mapping (flowcharts) in the Canterbury District Health Board Setting

Consent form for Participants

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time without disadvantage

3. The data (questionnaires/audio-tapes) will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed;

4. The results of the project may be published and will be available in the library but every attempt will be made to preserve my anonymity.

I agree to take part in this project.

(Signature of participant) (Date)

This project has been reviewed and approved by the Otago University Ethics Committee
An examination of the feasibility and acceptance of Process Mapping (flowcharts)\* in the Canterbury District Health Board setting

Questionnaire January 2005

\*NB: A PROCESS MAP REFERS TO A FLOWCHART AS USED IN THE SERVICE PROVISION FRAMEWORK

Instructions – please answer all the questions by ticking the box that most closely represents your opinion. Comment fields have been provided for additional feedback.

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<tr>
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<td>Female</td>
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1. Have you contributed in any of the process mapping for your unit?  
   Yes\[ □ \] No\[ □ \]
   If yes please comment on the experience:

2. Have the process maps increased your understanding of how processes in your unit work?  
   Yes\[ □ \] No\[ □ \]
   Please provide details:

3. In your opinion is process mapping a useful tool in capturing health care processes in CDHB?  
   Yes\[ □ \] No\[ □ \]
   Please provide details:

4. Have you found the visual representation of a process map useful?  
   Yes\[ □ \] No\[ □ \]
   Please provide details:
5. Do you refer to the documented process maps for your unit?  
   Yes ☐  No ☐  
   Frequency:  
   weekly  monthly  quarterly  annually  

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<th>Question</th>
<th>STRONGLY AGREE</th>
<th>AGREE</th>
<th>DISAGREE</th>
<th>STRONGLY DISAGREE</th>
<th>DON'T KNOW/NOT SURE</th>
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<td>6. Process maps accurately capture the processes of my unit</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
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<td>7. Clinical processes have been successfully integrated into the process maps of my unit</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
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<td>8. Process mapping has been used to improve internal service delivery.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>11. I find the process maps useful.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>12. It is my opinion that process maps accurately represent the identified process.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>☐</td>
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<tr>
<td>13. It is important to update the information contained within the process map to accurately reflect current process.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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<td>14. The process maps for my unit are readily accessible.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
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15. Describe 3 key benefits of process mapping  
1.  
2.  
3.  

16. Describe 3 drawbacks/concerns you have around process mapping  
1.  
2.  
3.  

Please feel free to make any other comments:  

This project has been reviewed and approved by the University of Otago Ethics Committee