Redesign of a consultant led prosthetic clinic

MSc in Healthcare Management 2014

Student ID: 12120758
Submission Date: 14th May 2014
Word Count: 15,406
Facilitator: Ms Theresa Keane
# Table of Contents

List of tables’ iii  
List of figures iv  
Abstract v  
Acknowledgements vi  

1. Introduction .......................................................................................................................... 1  
   1.1 Context of organisation .................................................................................................... 1  
   1.2 Rationale for change ....................................................................................................... 2  
   1.3 Aims and objectives ........................................................................................................ 4  
   1.4 Role of the Student ......................................................................................................... 4  
   1.5 Summary ....................................................................................................................... 6  

2. Literature Review .................................................................................................................. 6  
   2.1 Introduction ................................................................................................................... 6  
   2.2 Process Design ............................................................................................................. 7  
   2.3 Capacity and Demand .................................................................................................... 10  
   2.4 Documentation ............................................................................................................. 15  
   2.5 Assessment forms .......................................................................................................... 17  
   2.6 Outcome measures ........................................................................................................ 20  
   2.7 Implications for the change project ................................................................................ 22  

3. Methodology ........................................................................................................................ 24  
   3.1 Introduction ................................................................................................................... 24  
   3.2 Critical Review of Change Models .................................................................................. 25  
   3.3 Initiation Stage .............................................................................................................. 30  
   3.4 Planning stage ............................................................................................................... 33  
   3.5 Implementation ............................................................................................................. 35  
   3.6 Mainstreaming Phase .................................................................................................... 37  

4. Evaluation ............................................................................................................................ 39  
   4.1 Introduction ................................................................................................................... 39  
   4.2 Quantitative Results ...................................................................................................... 40  
   4.2.1 Participation questionnaire ....................................................................................... 46
List of tables

Table 1: Waiting time statistics  P41
Table 2: Assessment appointment duration  P41
Table 3: Space utilisation  P43
List of figures

Figure 1: HSE change model  P28  
Figure 2: Assessment form completion rate 2013  P44  
Figure 3: Assessment form completion rate 2014  P45  
Figure 4: Results of the participation questionnaire  P46  
Figure 5: Radar diagram of clinic format before and after change  P48
Abstract

The writer’s department operates a consultant led clinic once a week on a Friday. Its purpose is to provide an interdisciplinary team assessment for new patients being referred into the service, whilst also providing consultant/prosthetist review appointments for established patients.

The current clinic process has evolved to have an inefficient patient flow resulting in delays to the patient, variation in waiting time and appointment duration with its accompanying assessment form having a low completion rate.

The HSE change model was chosen to restructure the clinic. During the initiation and planning stage an Interdisciplinary assessment form was designed through a collaborative approach and the clinic process redesigned into parallel clinics within the department. Following a presentation outlining the rationale for change and the new clinic structure proposal the project went live on the 25th April.

Results from the first two clinics showed that assessment form completion rate increased and waiting times reduced which was in line with what was expected. The appointment duration increased which was not intended.

The assessment form will continue to be developed to provide a quicker population method based on best practice and historical input.
Acknowledgements

I would like to thank all those who have helped me with this project and also throughout the two year journey which has been this MSc. A special mention goes to my family whom never tired of supporting me during the challenges that I faced and my facilitator Ms Theresa Keane. Whose balanced view of my project provided perspective and objectivity when needed most.
1. Introduction

Change in healthcare is abundant worldwide (Glouberman and Mintzberg, 2001) with changing populations the resulting needs and expectations are therefore changing too (HSE, 2008). It can therefore be seen that a process or way of working that was relevant at one point in an organisation's history may no longer be appropriate in the present as the needs and demands change. Given the present economic climate within Ireland, where demand on healthcare is increasing and resources are decreasing the author would view this as being especially relevant in today’s climate.

1.1 Context of organisation

With this in the mind, the authors’ project is to redesign a consultant led prosthetic clinic. The clinic is held for out-patients on a weekly frequency every Friday. Its purpose is for newly referred patients to be assessed by the multidisciplinary team with view to prescribing prosthesis, and also for established patients to participate in a joint review with consultant and prosthetist. With the aim being for medical issues, treatment plans and patient advocacy to be discussed. The present design of the clinic had been established approximately eighteen months previously, where an assessment model established in National Health Service prosthetic centres was proposed and then implemented. This consisted of a multi-disciplinary team approach where four patients were appointed at the same time, each allocated to a
different starting station with one therapist before rotating to the next station after a fifteen minute assessment. Four stations were set up consisting of prosthetist, consultant, physiotherapist and occupational therapist. Once each patient had been assessed at each station the clinicians would meet and discuss the patient, predict an activity level and then the prosthetist would form a prosthetic prescription. The patient would be informed and an appointment to start prosthetic provision arranged. In principle four patients could be assessed in an hour. When applied to the authors department this formed a clinic structure of four assessments scheduled for nine thirty in the morning and eight review patients scheduled from ten thirty to twelve thirty in the morning.

1.2 Rationale for change

However this format did not prove to be a success due to a lack of understanding of the process within the attending staff and a teamwork culture clash. Whilst the rotation model focused on a multi-disciplinary approach the authors department had moved to work in an interdisciplinary teamwork model following Commission on Accreditation of Rehabilitation Facilities (CARF) accreditation for in-patient care. The attending therapists were primarily based in the in-patient setting with only four hours allocated to the out-patient setting. As a consequence this was leading to the four assessment patients being started at the same time by the medics who numbered between two and four depending on who many registrars were on duty. The prosthetist, occupational therapists and physiotherapist numbers
remained constant unless in the event of leave when their numbers would be less. As the team was continuing to work to an interdisciplinary model, the resultant effect was that therapists were moving between patients in an unplanned manor when requested by other members of the team. Consequently this was leading to significant variation in appointment duration and patient wait times during the clinic. It was observed that the assessment patients were not always finished by the start of the review patients. This again increased the variation in appointment duration and waiting time variation which was being compounded by not using all the available rooms in the department.

Following staff and roll change in April 2013 there was growing acknowledgement from the team that the clinic flow was ineffective with delays becoming more common, with the resulting variation in appointment duration and patient wait time needing to be addressed. A further issue was identified to be that of documentation, as the assessment forms were not being consistently completed and that the attending physiotherapist and occupational therapist were inconsistently recording within the healthcare record. Instead preferring to rely on the consultant letter to document their input, as the letter followed every appointment.

Given that patient flow in healthcare is acknowledged to have delays within it (Haraden & Resar, 2004) which can adversely affect resource utilisation (NHS, 2005) the need to redesign the flow to improve efficiency and quality
(Baker et al, 2009) of care is clearly needed. In addition to the patient flow issue, there is that of documentation. The literature would show that whilst there is no direct correlation between the quality of documentation and the quality of care received (Bosek & Ring, 2010), it is essential for good communication and in the formation of a care plan (Tornvall & Wilhelmsson, 2007). This is relevant to the authors organisation given that that new patients are rehabilitated through interdisciplinary team model of in-patient care.

1.3 Aims and objectives

With this in mind the overarching aim of the project is to redesign the consultant led prosthetic clinic. In order to achieve this, the following objectives were set:

- Reduce the patient wait time during the clinic
- Reduce variation in appointment duration
- Improve clinic space utilisation
- Design and implement an IDT assessment form
- Determine the percentage completion rate of the assessment form

1.4 Role of the Student

In order to achieve the overarching aim of the project, the author took on a leadership role to drive the change project through whilst using the HSE change model (HSE, 2008). This required a four stage approach consisting of
initiation, planning, and implementation and finally mainstreaming. Initiation required a situational analysis which consisted of a stakeholder analysis, force field analysis, Goffee and Jones cultural analysis, PESTLE SWOT and TOWS analysis, data collection of appointment times from 2013 and a collaborative approach to process mapping of the current clinic structure. The planning phase was aimed at building commitment by communicating the issues identified with the clinic, and then using a participative approach to improve buy in and reduce resistance (Kotter and Schlesinger, 2008) by redesigning the clinic process and constructing an interdisciplinary assessment form. The implementation stage consisted of a presentation to the team outlining the current structure and its quantified issues followed by the proposed new structure and assessment form. This facilitated agreement on the new structure and its implementation date. Clinic lists were then restructured with attention paid to the timing of patient appointments relative to their travel time. During the mainstreaming data was collected on appointment times (arrival time, seen time, finish time) and the assessment form completion rate. Questionnaires were issued to the team members so that their opinion on their involvement in the change process and their view of clinic efficiency before and after the change could be sought. In order to facilitate this, a situational leadership approach was taken. Whilst the author was the department manager the clinic was essentially under programme management due to the interdisciplinary team approach. As the programme manager position was not occupied during the project, the situational approach was deemed most appropriate in order to be flexible with the stakeholders and in application of the authors influence.
1.5 Summary

This project is aimed at improving process efficiency and documentation within a consultant led prosthetic clinic. All changes have been underpinned by a literature review to provide an evidence base for the new design, in order to maximise the success and longevity of the project. Although the project was subject to substantial delays which will be discussed in further chapters, much has been achieved in improving patient flow and documentation standards whilst embedding the new way of working into department culture.

2. Literature Review

2.1 Introduction

This chapter is a review of academic literature of the main themes associated with the redesigning of the consultant led clinic. It is done in order to provide a knowledge base from which to consider the critical points and current knowledge on the subject.

Its objective within this project is to identify current knowledge and practice around the themes of process design, capacity and demand, healthcare team models, documentation, assessment forms and outcome measures. To do this, key words were used in the search. These were prosthetics, assessment forms, standardisation, documentation, capacity, demand, process flow, healthcare teams. Google scholar, RCSI library, UCD library, Prosthetics and
Orthotics online library were all used to search for publications. The publications used were selected in the English language, publicised in either journals or books.

The identified themes were chosen in order to form the basis for restructuring the clinic into a smooth process with capacity set as appropriate to the demand, whilst having appropriately designed documentation to compliment it. Some of the literature recommended that outcome measure be used at assessment stage so that the effectiveness of an intervention could be measured upon the interventions completion.

2.2 Process Design

Flow is a concept which describes the progressive movement of information or people through a sequence of processes (NHS, 2005). However when viewed in the healthcare setting it is defined as being dependent on the inherent variation within healthcare delivery systems that results in the patient being guided through a series of steps in a process which will typically have delays within it (Haraden & Resar, 2004).

Such delays within the flow may typically result from the demand exceeding capacity, a mismatch between variation in demand and capacity, and a perverse incentive for having a queue, such as appearing to be busy in order to be rewarded with extra resources to reduce the queue (NHS, 2005). However by analysis of flow through process mapping delays and bottlenecks
can be identified in order to create a redesigned process which will be quicker and more efficient to facilitate better quality care. Concepts such as Lean Management (Anon, 2004) can be used in processes redesign to ensure that value is added to every step (Womack et al, 2005) and bottlenecks are removed from the process.

Whilst the work of Brideau in 2004 outlined the rising complexity in healthcare systems during the fifty years prior to the article, the concept of flow in healthcare was still in its infancy despite the promise of improvements in efficiency and quality at the time of being published.

Evidence to support the need for development of the flow concept to improve efficiency and quality can be found in the article by Baker et al in 2009 which investigated patient flow variability and unplanned readmissions to an intensive care unit. It did so by analysing a twenty three month period containing three thousand two hundred and thirty three patients to ascertain patient admission numbers in relation to daily admissions, unplanned readmissions and patient complexity. The study found that unplanned readmissions had a higher chance of occurring within a three day period following on from any day which had more than eight patients admitted. This was resulting in a decrease in capacity for new admissions and a degree of rework whilst also compromising patient safety. Whilst the study drew recommendations around quality improvement methods, teamwork and culture, it strongly recommended that patient flow should be used to
standardise processes, maximise resources to achieve overall efficiencies and improve patient safety.

Despite the afore mentioned potential benefits being clear, it was found that this concept was not being significantly explored and applied across healthcare due to the belief that each patient is different and a prevailing culture of physician autonomy (Brideau, 2004). However within Brideaus’ 2004 article, its case studies showed documented evidence that redesign of the flow in the healthcare setting can reduce unwanted random variation from the process, improved operating efficiency by increasing patient throughput with a reduction in patients self-discharging from an emergency department against medical advice. With strong evidence to support the concept of redesigning patient flow becoming available, along with growing interest in lean management due to cost pressures and national targets (De Souza & Pidd, 2011) why is the patient flow concept not more common place?

The 2011 article by De Souza & Pidd essentially outlines a lack of ground level operational synthesis to incorporate lean management into healthcare culture. Which in turn resulted in an effective barrier to lean implementation, that otherwise would have facilitated a focus on patient flow and processes to remove delays. It was found that healthcare professionals committed well to lean principles when it was used to provide structure to keep decisions under their control. This result was only achieved when the healthcare professionals were in a full understanding of what the goal was and the benefit that it would achieve. Citing issues of perception, new terminology established skill sets,
hierarchy/management roles, fragmentation in the team and a general resistance to change it can be seen that barriers are more people and organisational based (Radnor et al, 2006) as opposed to an inherent misapplication of flow and lean theory.

2.3 Capacity and Demand

If capacity is the resources available to do the work in a task, demand is all the requests and referrals from all sources requesting to have the task done (NHS, 2002). When a mismatch in capacity relative to the demand occurs this can cause delays, which in the healthcare setting equates to increased waiting time.

However it has been shown that a lack of capacity is rarely the issue as it tends to be the way in which capacity is supplied that causes the delays (Silvester et al, 2004). In the 2004 article on reducing waiting lists in the NHS, Silvester et al proposed four main hypotheses as to why waiting lists occur. These were outlined as the demand is greater than capacity, a mismatch in variation in demand and variation in capacity, that queues keep resources used at a hundred percent capacity and that a queue can discourage use of what people perceive to be scarce resources. Whilst the article outlined that the mismatch in variation in demand and variation in capacity had been found to be the main cause of queues, it was able to show that capacity met demand as queue levels remained constant, bottlenecks in the system resulted in other resources being kept artificially busy and that clinicians and
managers didn’t understand the true demand levels meaning that the resources relatively speaking were not scarce.

But with this in mind, why is variation in demand and variation in capacity cited as the main cause of queues? Given that how capacity is being used was the summary of Silvester et al article, it becomes evident as to why this is the case when the theory of constraints is applied to healthcare (Goldratt and Cox, 2000). The main tenant of the theory is that the bottlenecks in the process dictate the process out-put, and that if capacity at the bottleneck is increased to reduce the queue or wait time, then the bottleneck will simply change location within the process. Therefore if capacity is varied at each system bottleneck on a regular basis demand at each bottleneck will vary and capacity will vary as action is taken. In the modern day scenario of funding cut backs adding capacity may not be a viable option for many, increasing the need to analyse capacity and demand.

When capacity and demand are properly analysed, it has rarely been found that demand is exceeding capacity (Audit Commission, 2002, 2003). Why therefore is capacity not consistently measured effectively to facilitate appropriate planning?

Bamford and Chatziaslan, 2009 identified that two factors came into consideration in this scenario. Those being conflicting stakeholder priorities in
relation to the use of the capacity and also the interaction of capacity decisions with each other. Should different stakeholders have different priorities for the use of resources during the decision making process, then a balanced outcome may not always be achieved. In turn this has the potential to introduce a bias in the resource utilisation leading to queues or delays in one aspect of the process as the true demand is not appropriately managed. This is then likely to feed back into a cycle of apparent variation of demand and variation of capacity in the effected parts of the process.

The second point of interaction of capacity decisions with each other raises the interesting concept of taking an overview of the entire situation before making a decision. In order for a patient group to be provided with appropriate treatment, several different resources may have to be utilised to do so. Thus the utilisation of different resources will have a knock on effect on the other. Whilst it was identified by Bamford and Chatziaslan in 2009 that a focus on single resource uptake was common place, it was clear to see that this was not the most appropriate way to proceed as it led to lower utilisation in the system as a whole (Gemmel & Van Dierdock, 1999). In order for the whole system to be utilized effectively, system wide performance measures were recommended so that the most significant resources were measured (Zigan et al, 2008). By taking a broader view of the system, it ensured that the knock on effect which was identified to occur in single resource focus would not occur, as different departments have different demands that must be responded too.
2.3 Healthcare Team Models

The concept of the team approach is common in healthcare, as teams are seen as a way to provide quality services and as a way to redesign work (McCallin, 2001). Whilst the scale and complexity of this challenge is considerable, the concept allows the potential of the individuals within the team to be utilised so that the task at hand is spread across the team with increased levels of responsibility. Three main models of healthcare teams were identified to be Multi-disciplinary, Interdisciplinary and Trans-disciplinary.

Multi-disciplinary teams function with its individual team members working independently to gain information before coming together to share the information before making any decision (Sorrells-Jones, 1997). This style of team requires someone to determine what disciplines will form the team. With each team member then working in their discipline specific parameters, it can be seen that this is supportive of independent clinical decision making. However the communication of this information will be directly or in-directly communicated/shared to the rest of the team (Dyer, 2003), which in turn can be seen to lack a degree of co-ordination or collaboration in the planning of care. This can result in members lacking a common understanding of patient issues which may influence interventions (Sheehan et al, 2007)

By contrast the interdisciplinary method of team work expands on the multidisciplinary team work concept by having all team members working collaboratively to solve problems and form a collaborative service plan (Dyer,
A more holistic approach can therefore be taken, that has the patient and family as integral centre members of the team. Whilst this substantially improves the patient focused approach when compared to the multi-disciplinary team, communication between all team members becomes essential in order to facilitate collaborative decision making and care plans during episodes of care (Behm and Gray, 2010). By using this approach the team can “provide knowledge, skill and expertise whilst using the individual team members’ perspective in the collective planning of patient goals” Easton, 1999.

It must be noted, however, that a significant challenge of the interdisciplinary team work model is conflict between team members who believe that their professional judgement is being questioned (Strasser et al 1994). Given the background of functioning within the individual discipline, such conflict must be guarded against so that the collaborative approach is maintained. Regression to the individual approach will hamper the efforts made in working towards collaborative thinking (Herbert et al, 2007), which is of course the essence of interdisciplinary working.

Trans-disciplinary working values knowledge and skill of each member and depends upon effective and frequent communication (Dyer, 2003). It differs from interdisciplinary working by having one team member as the primary provider and requires each team member to cross train in areas outside of their discipline. In what is a blurring of professional roles between team members, each member must show flexibility and willingness to take on this
model of care (Mumma & Nelson, 1996). Without the ability to take on what would ordinarily be another disciplines responsibilities in a different team model, the patient will be unable to receive the appropriate treatment. Each team member must therefore be highly competent and secure in their disciplines to enjoy teaching skills to others and acquiring new skills also (Garner, 1995)

2.4 Documentation

Documentation is the written and legal recording of the interventions that concern the patient and it includes a sequence of processes. This is established in the personal record of the patient to constitute a base of information regarding the patient (Ioanna et al, 2007). However, consistency in documentation quality is often difficult to achieve (Webber, 1987), even though it is seen as integral to professional practice and reflective of good quality care (McGeehan, 2007).

In light of McGeehan’s work it is important to establish the relationship between documentation and the quality of care. Interestingly, contrary to McGeehan’s work articles by Bosek and Ring in 2010 found that good patient documentation from clinicians did not necessarily reflect the same standard of patient care. Which was a finding further reflected by Ferguson et al, 2010 who concluded that it was difficult to prove that good documentation equated to good clinical practice. With this in mind, the potential disparity between documentation and care becomes an interesting proposition.
Cox 2003 undertook a study took over a one year period which gathered a substantial sample size on the documentation of cardiac history, specifically previous myocardial infarction or heart failure. The study found that a lack of documentation in the medical records was recorded and shown to be a concern on the quality of the subsequent treatment that was received. Whilst it postulated that if poor documentation reflected a gap in knowledge and competence of the physician as opposed to a lapse in documenting then patient management was being affected. However should a physician know the patient, then all documentation may not be recorded as the physician will be fully aware of the history and the lack of documentation only becomes an issue should the patients care pass to another physician. Therefore familiarity with a patient should not be a reason not to document pertinent information, which may act as a prompt for appropriate treatment.

The study concluded that lack of documentation complicates efforts at optimising patient management and recommended exploring the reasons that a lack of documentation occurs.

It can be seen from the literature that quality documentation is highly important in enhancing communication and in the formation of patient care plans without a direct link between quality of care and quality of documentation being proven. Communication has been proved to be essential for patient safety and comfort with documentation in the form of patient
records being cited as one of the main tools of communication (Tornvall & Wilhelmsson, 2007).

With this being the case would there be any benefit in standardisation of the documentation being used in patient care?

Standardisation of a process is designed to formalise procedures so that it can be repeatedly followed with the aim of consistently achieving repeated quality (Ungan, 2006). Without such standardisation it has been found that variation in processes can result in variation in quality (Shiffman, 2003). However a Swedish study found that Nurses cited time constraints and a lack of knowledge as major concerns when looking to standardise documentation (Bjorvell et al, 2003) which points to implementation as opposed to inappropriate theory as a barrier to standardisation of documentation.

2.5 Assessment forms

There is currently a wide range of tools available to assess patient function and activity of daily living; however few are specific for assessing amputee’s functional potential with prosthesis (Gailey et al, 2002). Given the backdrop of busy clinical practice using an assortment of tests to determine all the various aspects is likely not to be feasible (Miller et al, 2001). However, given the need for consistent repeatable documented information in modern practice, assessment forms are advisable tool to facilitate this need, as they are
associated with significantly higher rates of documentation (Parikh et al, 2007).

A search of literature for prosthetic assessment in the interdisciplinary team setting revealed no recommended or specifically designed tools. However the benefit of an interdisciplinary team assessment and subsequent rehabilitation programme was outlined as early as 1987 by Ham et al. The article showed that the amputee’s rehabilitated through a team approach would have substantially improved outcomes from prosthetic provision in terms of improved functionality, reduced primary rehabilitation time whilst also introducing a cost saving for the health service (Ham et al, 1987). These gains are underpinned by a thorough patient assessment.

Amputee assessment instruments such as AMPRO (Gailey et al, 2002) proved to be validated, but were designed for single discipline use. As the core rehabilitation team members for an amputee service are regarded as being the Rehabilitation Consultant, Prosthetist, Physiotherapist, Occupational Therapist and Nurse (Jorge et al, 2012) an assessment form appropriate for the situation was required to be developed. With this in mind, an assessment form to be used during an interdisciplinary team assessment, which would predict activity level in combination with providing all attending team members with specific information to formulate their own care plan, would need to be constructed to facilitate this. The benefits of standardised documentation as outlined in section four can then be achieved.
On the basis that each individual discipline within inter disciplinary team has their own key areas of pragmatic knowledge (Schilling, 2006) from which they will assess a patient to build their opinion and subsequent care plan; a collaborative approach was found to be appropriate. As through this collaborative approach the function and efficiency of the final product which in this case is the assessment form, can be optimised (Wang et al, 2002). The term pragmatic knowledge can be defined as established principles, heuristics and rules which guide their actions and decisions during the assessment process (Schilling, 2006).

As an overview the 2009 article by Sansam et al, reviewed literature to determine the constituent factors around which prediction of walking ability post amputation can be based. It showed that the main factors to take into consideration were amputation cause and level, residual limb presentation and pain, cognition and mood disturbance, body mass index prior to amputation, physical fitness, motivation, pre-amputation walking status, ability to stand on one leg, independence in activities of daily living, employment history, hobby history, age, co-morbidities, social support and smoking history (Sansam et al, 2009). Whilst the article acknowledged that each factor accounted for varying degrees of significance in a patient’s outcome, it did not present a standard assessment or measurement for each aspect. But it did give rise to a template from which to base the core elements of the interdisciplinary assessment form. As in the absence of evidenced based practice, empirical knowledge which encapsulates the pragmatic knowledge
can be used in the assessment forms construction along with consensus based decision making (Van der Linde, 2004).

The literature will show that the use of assessment forms will save time during the actual assessment, facilitate standardisation in the assessment process and provide repeatable quality through the predetermined standardised measures and tests (Swinkels et al, 2011). Such improvements also facilitate healthcare being provided on an evidence base, built from the assessment form, as opposed to the unproven opinions of the individual clinician (Hewitt-Taylor, 2003, McSherry & Taylor, 2003).

2.6 Outcome measures

Outcome measurement is the evaluation of the effectiveness of the result of an intervention (lazenbatt, 2002). This clinical effectiveness is one of the seven pillars of clinical governance (Nicholls et al, 2000) which underpins healthcare delivery. In turn it facilitates the continued measurement of the quality of intervention to allow for continued improvement in the intervention. It has been shown that in the last ten years there has been an increase in the measurement of healthcare (Sheldon, 2005).

The principal of outcome measurement is clearly woven into the fabric of clinical governance. It does however need to have its goals and objectives clarified and measures linked to such goals with reliable data collection methods in place (Buckmaster, 1999), so that progress can be monitored and
suitable adjustments made as appropriate. The work of Garland in 2003 showed that standardised outcome measures may have direct impact in programme planning, funding decisions and also monitoring of quality of care across different agencies. But it also showed that there were barriers to effective implementation of outcome measures through clinicians’ attitude towards it (Garland, 2003). The barriers were identified as being a time burden, an increase in paperwork and a perceived invalidity of the outcome measures to the clinician’s patient group. These barriers were corroborated in an article by Abrahamson who cited logistical concerns and appropriateness of measures as a barrier to implementation (Abrahamson, 1999).

The literature review by Condie et al 2006 found that in the domain of lower limb prosthetics there are many outcome measures in use. However it was identified that there was no agreement on best practice and little agreement on which measure to use and when to use it or indeed a single measure to be universally appropriate (Condie et al, 2006). It therefore gives rise to a situation where an outcome measure must be selected to be used in the assessment process which can be used again at the end of the rehabilitation process. Blankertz 1998 identified eleven principles for this selection. These being that outcome measure should be relevant to the target group, have a simple teachable methodology, be objective, use multiple respondents, identify outcomes that are the results of the rehabilitation process, have solid psychometric data, have a low implementation cost, be understandable to a nonprofessional audience, involve easy feedback and uncomplicated interpretation, be useful in clinical services and be compatible with clinical
theories and practices (Blankertz, 1998). This can be seen to be effective in providing appropriate guidance in applying a contextually appropriate outcome measures as it considers all stakeholders perspectives and clinical service.

In Summary outcome measures whilst presenting ground level challenges to implement amongst clinical staff, offer notable benefits to patient care and service development by measuring the effectiveness of the clinical intervention.

2.7 Implications for the change project

The literature review revealed the main themes of the project to be that of process design, capacity and demand, healthcare team models, documentation, assessment forms and outcome measures.

Review of the process design area revealed that patient flow was a concept in healthcare that was of considerable relevance to the project. Flow enables the analyst to identify where delays are occurring whilst also identifying bottlenecks and resulting capacity and demand mismatch (NHS, 2005). By introducing techniques from industry such as lean management, processes can be redesigned to obtain value at each process step (Womack et al, 2005). However resistance in the workplace can be evident from clinicians through their lack of understanding as to its purpose and nature (Brideau, 2004). Capacity and demand revealed that lack of capacity in a system was rarely an
issue for delays forming, as it tended to be the application of capacity which was at the heart of the issue (Silvester et al 2004). And this was compounded by the true level of demand not being understood due to conflicting stakeholder priorities plus the interaction of decisions on capacity leading to a cycle of variation in capacity application (Bamford and Chatziaslan, 2009).

Healthcare team models was investigated in order to provide clarity on the appropriate model of teamwork in the rehabilitation setting which is the background to the clinic. It revealed three main teamwork models which were multi-disciplinary, interdisciplinary and trans-disciplinary all of which were shown to provide quality healthcare services (McCallin, 2001). However the interdisciplinary model was found to be appropriate for rehabilitation (Behm, 2011) due to its collaborative approach utilising each disciplines expertise to maximise communication and problem solving ability. The potential for conflict was noted as a potential drawback should the clinicians have a perception that their professional judgement was being questioned (Strasser et al 1994).

Documentation proved to be key area of review as it was found that healthcare documentation is a legal requirement and forms a base of information on the patient (Ioanna et al, 2007). Whilst it was established that consistency within this area was difficult to achieve (Webber, 1987) the benefits have been shown to be enhancement of communication and to be critical in the formation of a care plan (Tornvall and Wilhelmsson, 2007). This has led to standardisation being sought in order to facilitate improvement in the consistency and quality (Ungan, 2006). The type of documentation
particularly relevant to this project is that of assessment forms. Few assessments specifically aimed at assessing amputees potential with prosthesis were found (Gailey et al, 2002), or indeed specific to the interdisciplinary team setting. In order to design a standardised assessment form each team member's knowledge was used (Schilling, 2006) in a collaborative approach in order to maximise the forms function and efficiency (Wang et al, 2002). Factors which were considered to be predictive of the potential ability to ambulate were also taken into consideration form Samsan et al's 2009 publication.

Finally outcome measures were recommended to be included in the assessment form as good practice to measure quality of care. They have been found to help in programme planning, funding decisions and improving quality of care (Garland, 2003). However as there was not one specifically recommended outcome measure (Condie et al, 2006), guidance on selection criteria was taken form a publication by Blankertz in 1998.

3. Methodology

3.1 Introduction

Change occurs when movement from one way of operating to another way operating is undertaken. It is however usually feared as it is a disturbance not only of the status quo but a threat to people’s vested interests and the established way of doing things (Kotter and Schlesinger, 2008). Yet within the
world of healthcare change is abundant worldwide (Glouberman and Mintzberg, 2001) as the population is changing resulting in its needs and expectations changing also (HSE, 2008). Given that seventy percent of healthcare change initiatives fail (Balogun and Hailey, 2004) careful consideration must be given to the change management model employed. As there is not one change model that is universally accepted as being suitable for all organisations and situations (Todnem, 2005)

The following chapter outlines why the HSE change model was selected by the author, instead of other recognised change models such as those from Lewin, Kotter and Deming.

3.2 Critical Review of Change Models

In 1958 Kurt Lewin proposed a three phased approach to planned organisational change. It was based on the principle of force field analysis, where by change would only occur when the driving forces were greater than the restraining forces. This would then enable the desired change to become permanent feature and that the old behaviour will be discarded (Morley et al, 2004).

The three phases of the model are unfreezing, change and refreezing. Within the unfreezing state the forces which are restraining the new situation must be reduced whilst creating a palpable need for change. Strategies to do so may consist of education and communication of the underlying need. The middle
phase is the change phase itself. At this point the change is implemented through structural and process changes typically using a change agent to promote the case. At this point the values and attitudes of the stakeholders should be becoming consistent with desired outcome. Finally the refreezing phase begins and the change should stabilise in the newly reached situation. This should be reinforced by supporting mechanisms, values and a culture to facilitate the new way of working.

Whilst this model can be seen to be a general framework (Todnem, 2005) for understanding the change process, some considered it to be too broad (Eldrod and Tippet, 2002) and perhaps not practical (Bamford and Forrester, 2003) resulting in adaptations of the theory being developed. However the work of Bamford and Forrester showed it to be highly effective and suitable for small scale incremental change (Burnes, 2004). The author would therefore argue that given the continual evolution of healthcare this model is perhaps appropriate in some instances but not for situation where there is continual change and evolution in a cyclic manner.

In 1995 John Kotter introduced a change model consisting of an eight step process. It was developed from a study of over one hundred organisations varying in size and industry and concentrates on avoiding the major errors that can befall any change process (Mento et al, 2002). Best viewed as a vision of the change process it focuses on the strategic level of the process (Mento et al, 2002). In sequential order these steps are establishing a sense
of urgency, forming a powerful guiding coalition, creating a compelling vision, communicating the vision, empowering others to act on the vision, planning for and creating short term wins, consolidating improvements and finally institutionalising the new approach (Kotter, 2006). It can be seen that the first three steps create a climate for change, the fourth, fifth and sixth steps engage and enable the whole organisation whilst the final two steps implement and sustain the change.

Whilst the model became an instantaneous success upon its release despite the publications lack of referencing, subsequent limitations of the model have been identified (Appelbaum, 2012). These are cited by Appelbaum in 2012 as it having a rigid approach, that some steps are not relevant to the context in which they are applied and its ability to deal with difficulties and changes it encounters during the change management process. To its credit the model is cited as an excellent starting point which will improve the chances of success (Appelbaum, 2012), whilst also being recommended to be used in combination with other models so that it can overcome its limitations.

The plan, do, check, act cycle was first discussed by Walter A Shewhart in 1939 (Best and Neuhauser, 2006). However it was following its promotion by W. Edwards Deming, that the cycle became known as the Deming cycle. The four step cycle begins with the change process being planned out, is acted on, the results are measured to find deficiencies and then the gap between the intended goals and the results achieved is acted on (Senapati, 2004). Like
Lewins’ model, the Deming cycle can be seen to be rather simplistic in its approach and lacks detail for approaching complex challenges. However its strength is that it is designed to be a cycle and will allow for continual improvement within the change process.

The final change model considered was the HSE change model (HSE, 2008). This model is developed from a literature review of best practice and on HSE organisational experience, whilst incorporating the involvement of all key stakeholders. There are four stages within the model (see figure 1).

**Figure 1: HSE change model**

In sequential order these are initiation, planning, implementation and mainstreaming. The initiation stage of the process serves as a situational analysis where the need and urgency are identified and project direction given. The next stage is planning, where it is aimed at determining the detail of the change and to create support. Within this stage are three individual
steps, of which the first is building commitment. This realise on building a shared vision, communicating the vision, increasing the readiness and capacity to change whilst demonstrating that change is underway from a viewpoint that the old way of operating is about to change. The second step of determining the detail of the change can be defined as assessing the current situation to compare it against the new vision, feeding back this analysis to the stakeholders then describing what needs to change. Developing the implementation plan is the final step in this stage and focuses on outlining the detail of the plan and reviewing it with all relevant stakeholders with view to revising it as necessary. The third stage is that of implementation where agreed actions are carried out and momentum is built behind the initiative. The final stage is mainstreaming. At this point focus is put on the success of the change effort so that it can be embedded into the culture and also evaluates its predetermined outcomes. This model has flexibility to it as it allows for movement between stages to cope with changing circumstances. Whilst also being cyclic in nature which will allow for continual improvement and evolution of the situation.

When the four different models were taken into consideration, the HSE model was seen by the author as being most applicable to the project. Whilst the other models had advantages such as Kotter’s emphasis on communication, Lewin’s focus on reducing restraining forces or the continuous improvement of the Deming cycle. They all had significant weaknesses which would have made using them problematic. In the authors opinion the HSE model incorporated strengths from the other models such as situational analysis,
cyclic nature and stakeholder involvement whilst adding attention to detail, flexibility and heightened awareness of culture. The only drawback which was apparent was the potential to become stuck between stages should the previous stage not have been comprehensively completed.

3.3 Initiation Stage

The initiation stage was delayed by four months due to staff change and staff shortages. However once the project was underway a situational leadership approach was employed so that the style of leadership was appropriate to the situation in order to be at its most effective (Papworth et al, 2009).

As per the HSE model, this stage consisted of a situational analysis designed at obtaining an understanding of the background in which the project would be set. In order to do this the following analysis tools were used. SWOT, PESTLE, force field, stakeholder, Goffee and Jones cultural analysis, process mapping and the likelihood of resistance determined. Each of the tools will now be discussed.

The SWOT analysis (see appendix 1) is a simple tool used to determine the strengths, weaknesses, opportunities and threats in relation to its purpose for being used (Walshe and Smith, 2011). When carried out it revealed that the project had more weaknesses than strengths but more opportunities than threats. However the strengths and opportunities of the project were seen to
be quite powerful by the author as they would facilitate change whilst the threats and weaknesses could be avoided or overcome. To structure this TOWS analysis (see appendix 2) as recommended by the RCSI was performed so that strategies to develop the project could be implemented. A PESTLE analysis (see appendix 3) was also carried out to examine the external influences, but it did not reveal any further points to be extrapolated on.

Once the initial analysis was done an informal discussion then took place with high importance high influence stakeholders as identified in the stakeholder analysis (see appendix 4). It was decided to use informal discussions with the team as a Goffee and Jones cultural analysis (see appendix 5) had revealed a communal culture (Goffee and Jones, 1998) in the service. The first discussion took place with the consultant/head of service, in order to seek their opinion and bring forward the findings of the situational analysis. As the most powerful stakeholder in the project approval at this stage was vital. Without it the project would be unlikely to proceed as decisions made at this level have not been seen to be reversed. However the discussion revealed an understanding of the issues raised and a willingness to change in order to address the variation in waiting and appointment times and to improve patient flow.

This was followed by proceeding to discussions with the physiotherapist and occupational therapist involved in the project. As staff resistance to change,
perception of quality of service and staff buy in were identified as being resistors to change in the force field analysis (see appendix 6) a process of weakening these resistors was undertaken. Focus was put on participation and involvement (Kotter and Schlesinger, 2008) in a process mapping exercise so that the full extent of the current situations patient flow (see appendix 7) could be seen. Once this was done the team could be seen to understand the issues more clearly as it was referenced during clinics when delays occurred. Data from the 1st January 2013 to 31st December 2013 was collated into a spreadsheet as preparation for future presentation. The data collected was on appointment duration, on the day waiting times, assessment form completion, change of prescriptions, patient seen per clinic.

This spreadsheet was also used to analyse demand on the service in 2014 based on data from 2013. It was found that the average length of assessment appointment was sixty three minutes with two point six assessment patients per clinic. Review clinics proved to have an average appointment time of thirty six minutes with six point seven review patients attending per clinic. A second process map with the proposed new situation was then drafted and a new interdisciplinary team assessment form drafted with view to it being discussed and redrafted.
3.4 Planning stage

The second process map of the proposed new situation was then shown to the team. This drew resistance as the proposed method was that of a multi-disciplinary approach and not of the interdisciplinary approach which is used in the hospital in-patient setting, which conforms to CARF accreditation standards. It could be seen at this time that there was a cultural element to the resistance as the IDT approach was believed to be the hospitals way of working, even though accreditation for out-patient CARF standards had not yet been sought. The process map was redrafted (see appendix 8) to represent an IDT model for new assessments which would take place in one room located at the back of the clinic. Patients would have hour long sequential appointments, with capacity set to four which was one appointment slot more than had been identified during data collection from 2013. The Consultant review clinic was also mapped out (see appendix 9), with the intention of it running at the same time but using the two main rooms in the department, operated by the remaining team members. In this clinic each appointment would be allocated thirty minutes with capacity set to a maximum of eight which had one extra appointment slot from the figure identified during data collection from 2013. This was agreed by the team as an appropriate process to use. To be used at the assessment process was the interdisciplinary team assessment form. This was drafted from the existing assessment form, current in-patient assessment form and publications found in the literature review. It was decided that each team member would have their own section to complete as the assessment progressed. This was to act as a guide for the assessment in the event of less experienced staff being
present and also to ensure that the agreed content of the form was completed.

Meetings were arranged for mornings before clinic started so that the content and flow of the assessment form could be discussed and redrafted, in order to avoid duplication, establish role clarity and confirm the content. In order to capture the data into one presentable format to communicate the vision and implementation plan, a presentation was constructed (see appendix 10). At this point in the project commitment had been gained from all the stakeholders through participation in determining the detail of the changes. However the project effectively stalled for one month as the Consultant/Director of service unexpectedly took sick leave. As the length of absence was unknown at this point and the new programme manager had not taken up the post, the project was unable to move into the implementation phase as there was no senior management to approve it. Also the physiotherapist in attendance at the clinic changed due to the senior returning from leave. In order to maintain the momentum that had built up during the planning phase, regular informal conversations took place to keep awareness of the project intact.
3.5 Implementation

Following the Consultant/Director of services’ return to work, a presentation date was arranged. Due to various work place commitments not all of the team were available at the same time. This was due to either geographical clinic location or patient appointments which had no alternative dates within reasonable time frame. It was therefore decided to first of all present to the Consultant/Director of service and senior physiotherapist with view to establishing a go live date. The senior occupational therapist felt sufficiently involved and satisfied with the proposal to not need to attend the presentation and instead requested to be notified of any changes. The outcome of the presentation was that the go live date was set to the following week (twenty fifth April) to facilitate rearranging patient appointments and that the case load of the assessment clinic be reflective of whether a senior or junior prosthethist was attending it. The consultant also requested that the decision on which doctor attends the review or assessment clinic be left at their discretion due to training needs of registrars. Given that the identified reasons were outside of the authors’ scope of management and it was concerning a stakeholder of high importance and high power, this was agreed upon. Following on from the presentation the senior occupational therapist confirmed that there were no further issues to be addressed from her perspective and the appointment schedule was rearranged to facilitate the new structure.

The date of the first clinic was communicated to all team members verbally and by an e-mail summarising the key point of the process and new
assessment form. All new assessment forms were printed of by administration staff and filed into the healthcare records for the patients listed as an assessment. On the morning of the first clinic the team members arrived on time for the changed start time, which was thirty minutes earlier than previously. However due to a third clinic being scheduled for that day (an upper limb clinic which involved a registrar, senior prosthethist and senior occupational therapist) and a change to the programme manager position where by the senior physiotherapist had been moved into the programme manager position at short notice resulting in no physiotherapy cover being available for the first clinic. It led to the assessment clinic operating with the registrar and senior prosthethist as there was no physiotherapy cover provided to the clinic and the senior occupational therapist was allocated as planned to the upper limb clinic. A further discussion took place with the registrar regarding the new form and to advise that the prosthethist would be able to complete sections of the occupational therapy and physiotherapy sections due to prosthethist clinical practice overlapping within these areas. In order to be able to address any issues as it emerged and to support the new way of working the author was allocated to the assessment clinic and the other senior prosthethist allocated to the upper limb clinic. At the end of the clinic the only issue of note that had developed in either the assessment clinic, review clinic or upper limb clinic was that there was a format error in the new assessment form document. A discussion took place at the end of the clinic whereby no problems were perceived to have occurred in the clinic operation and the team consensus was that it was an uneventful start to the new
structure but that more would be known following the second clinic where there was a full allocation of staff members.

3.6 Mainstreaming Phase

As the second clinic approached one week later, the team was again engaged in discussion throughout the lead up time, with regard to how the clinic structure would work and what had emerged from the previous week. It was acknowledged by the author that in the first clinic the assessment form had been completed by one person in order for the team member who was performing their assessment of the patient to avoid interruptions to their work flow, followed by a check of the detail entered at the end of the appointment. As it had proved successful in the previous clinic it was agreed to try it for the first assessment patient. On the morning of the second clinic the new programme manager requested an unplanned meeting with the author before the first patient was started. This meeting overran due to several items being discussed resulting in the first patient being started without the attending prosthetist at the consultants request. The registrar had been allocated the appointment by the consultant. At the end of the clinic several issues were identified for review which were the first appointment time slot of nine in the morning attending at ten minutes past ten, appointment duration of the ten o’clock patient being too long and the consultant allocating patients to the two attending registrars one of whom attendance had not been communicated to the author. Recording of patient arrival, start and end times had not been fully recorded for the consultant review clinic. It was noted however that the team
felt the assessment form had been a success due to its comprehensive design and having all the information recorded during the session instead of after the session was finished which had been part of the previous way of working. In order to bring into focus the points learned from the change process a review date was set for one month post change to review the lessons which had emerged and also the objectives of the project so that appropriate adaptations can be made.

By having the informal discussions before and after the clinics it is aimed at providing a system to facilitate continuous improvement within the new process, as it allows for the team members to express their opinion to increase their buy in to the situation. Whilst also keeping it appropriate to the culture of the department. The meeting date to review the projects objectives is aimed at facilitating removal of any temporary change structures that have developed such as having one person write up the assessment form whilst also quantifying the changes made in terms of assessment form completion rate, appointment duration and patient wait time. It is also a timely opportunity to look for any emergent improvements/issues that had not been foreseen to be addressed and a plan put in place.

Whilst this is the evaluating and learning part of the mainstreaming phase of the project it is of note that this section will be discussed further in the discussion section due to the time constraints which affected the project restricting the content of the chapter
4. Evaluation

4.1 Introduction

Evaluation can measure different aspects of healthcare before and after an intervention (Lazenbatt, 2002). The intervention should, however, be evidence based so that the gap between research and practice is reduced (Walshe and Smith, 2011). This can be done by measuring against a standard. Standards can be taken from international best practice, or if none can be obtained then a local standard should be set. The focus of the evaluation should be on efficiency - achievement of aim and objectives, effectiveness - have the desired outcomes been achieved, economy - have all outcomes been achieved and equity - has there been a fair opportunity to achieve the outcome (lazenbatt, 2002).

In order to evaluate the project, it was decided to use both qualitative and quantitative methods. Quantitative methods tend to assign numbers to the data collected and can be used in before and after studies. In this way statistics on time can be collected to evaluate efficiency gains from the process change, the percentage completion rate of assessment forms and team opinion when using the likard scale in a questionnaire. Qualitative methods which look to record peoples experiences were used in the form of unstructured interviews following each clinic. Whilst neither method has been shown to be better than the other (Carr, 1994) the emphasis was placed on the quantitative methods so that quantifiable information was obtained to
provide evidence that the theory was affecting the operational efficiency of the clinic. The qualitative methods were used to turn the teams experience into possible ways of improving the project, which should then be reflected back in the quantitative data at the next round of evaluation.

4.2 Quantitative Results

To evaluate the change in efficiency of the redesigned process time data was collected from the consultant led clinics in 2013 before the change and from the first two clinics following the change. This was done by having administration staff record the arrival time of the patient, followed by the clinician recording the start time and end time of the appointment on a clinic list located at the front desk in the reception area. This data was recorded for both assessment and consultant review patients. It was then able to be analysed into patient wait time and the appointment duration times. No standards could be found for the length of time a patient should wait in the prosthetic clinic from arrival to being seen or indeed for the appointment duration. A local standard was therefore implemented at thirty minutes. Variation in appointment time was determined so that any change in variation could be evaluated.

Table 1 displays the average waiting time and its variation for the assessment clinics for 2013 and 2014. This shows a seventy five percent reduction in the
average waiting time post change. The variation has also reduced significantly
with zero

<table>
<thead>
<tr>
<th>Waiting Time (minutes)</th>
<th>2013</th>
<th>2014</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average wait time</td>
<td>29 minutes</td>
<td>7.5 minutes</td>
<td>75% reduction</td>
</tr>
<tr>
<td>Shortest wait time</td>
<td>10 minutes</td>
<td>0 minutes</td>
<td>100% reduction</td>
</tr>
<tr>
<td>Longest wait time</td>
<td>50 minutes</td>
<td>30 minutes</td>
<td>40% reduction</td>
</tr>
</tbody>
</table>

Table 1: waiting time statistics

minutes being recorded as the shortest wait time and the longest wait time
being shown to have reduced forty percent to thirty minutes. It is of note that
patients who arrived early for their appointments and were seen prior to their
allocated time were not recorded in these statistics in order to maintain equity
in the service. Patients who arrived early but were seen after their allocated
time, had there figures recorded from the allocated time onward, and
conversely patients who arrived after their allocated time were recorded from
their arrival time onward. This was done to maintain equity within the service,
as in the authors’ opinion no control can be exerted over external transport
issues that occur on the day that can adversely affect the perceived efficiency
of the service.

Duration for the assessment appointments were calculated from the patient’s
start to finish time and is shown in table 2.

<table>
<thead>
<tr>
<th>Appointment time (minutes)</th>
<th>2013</th>
<th>2014</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average time</td>
<td>63 minutes</td>
<td>76 minutes</td>
<td>20% increase</td>
</tr>
<tr>
<td>Shortest time</td>
<td>20 minutes</td>
<td>30 minutes</td>
<td>33% increase</td>
</tr>
<tr>
<td>Longest time</td>
<td>105 minutes</td>
<td>120 minutes</td>
<td>15% increase</td>
</tr>
</tbody>
</table>

Table 2: Assessment appointment duration
This table shows a rise in the average time duration of the assessment appointments and also that the shortest duration time and longest duration times both increased. Although this result shows that the opposite of the intended goal has been achieved, in that time figures have increased instead of decreasing. It highlights interesting areas for discussion in chapter five as it is worth considering the content of the assessment form, design and layout of the assessment form and leadership style, as all will have a bearing on the duration of the appointment. It is also worth considering that the 2014 data is taken from the first two clinics, whereas the 2013 data has been taken from one years’ worth of data of which the appointment duration was recorded over twenty three clinics from when the time data recording was implemented in May. Process familiarity may also be a factor as well as perception of available time in the increase of appointment duration.

So that clinic space utilisation could be quantified for each clinic (assessment and review appointments combined) the number of hours that each room was occupied for by one or more patients was determined. This is shown in table 3. Clinics held in 2013 had a total of three and a half hours available for use per clinic (nine thirty am start time to one pm finish time),
Table 3: Space utilisation

<table>
<thead>
<tr>
<th>Clinic room (average hours per clinic)</th>
<th>2013</th>
<th>2014</th>
<th>Change in utilisation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male fitting room</td>
<td>3.5 hours</td>
<td>4 hours</td>
<td>0%</td>
</tr>
<tr>
<td>Female fitting room</td>
<td>3.5 hours</td>
<td>4 hours</td>
<td>0%</td>
</tr>
<tr>
<td>Female cast room</td>
<td>0 hours</td>
<td>3 hours</td>
<td>+75%</td>
</tr>
</tbody>
</table>

whilst the 2014 clinics had a total of four hours during which they were available to be used (nine am to one pm). Whilst this shows that the number of rooms being used has increased, it also highlights that the female cast room which had been allocated to be used in for all new assessments had not been used for the maximum time available. The first clinic of 2014 had operated at full capacity for the assessment clinic although one appointment had been performed in a separate room due to one patient arriving late which had resulted in another prosthetist using the female cast room and therefore not available for the assessment. The second clinic had two patients attend and as the first appointment duration was longer than the allocated hour, part of the second appointment had been performed in a different room due to the consultant allocating a registrar to start the session to minimise any patient delay. Therefore the total time spent on assessment patients was three hours forty minutes, three hours of that time was spent in the allocated room and forty minutes in a room not allocated for assessment. This also had the effect of lengthening the appointment time and reducing the potential waiting time. In summary the female cast room which had been allocated for use in the assessment clinic showed a 75% utilisation rate in 2014 compared to 0% in 2013.
Once designed the IDT assessment form was implemented from the first clinic. The pie chart in figure 2 shows the completion rate from 2013.

**Figure2: assessment form completion rate from 2013.**

As this was a low completion rate in comparison to the local standard of 100%, it was hoped that by developing an interdisciplinary assessment form that the completion rate would substantially increase. It had been found that with assessment form used in 2013 there had been a misunderstanding within the team as they understood it to be a form that only the prosthetist’s had to complete, whereas this form had originally been intended to be completed by all team members. Figure 3 shows the completion rate achieved in 2014 with a comparison to 2013 results.
This shows that a 100% completion rate was achieved for the first two clinics, which represents a 55% increase from the 2013 results. It is of note that there were zero forms partially completed were defined as one area not being populated.

The final area of quantitative data analysis was that of the questionnaires. Two questionnaires’ were designed and circulated to the consultant, registrar, junior prosthetist, occupational therapist and physiotherapist whom were involved in the project. The first was questionnaire (see appendix 11) was aimed at evaluating the teams participation experience in redesigning the clinic and the second (see appendix 12) was aimed at gaining there opinion on the format of the clinic. The second questionnaire was circulated before and after the change. The questionnaires were set up using a seven point Likert scales with each question so that the participant could rate their answer.
between very and not very relative to the context of the question. The participation questionnaire had a return rate of 50% (n=2, but was not circulated to registrar as they are rotated on a six week rotation), whilst the clinic format questionnaire had a return rate of 60% (n=3) before the change and a return rate of 60% (n=3) after the change.

4.2.1 Participation questionnaire

The results have been collated for and averaged for the participation questionnaire as shown in figure 4

![Figure 4 results of the participation questionnaire](image)

Figure 4 results of the participation questionnaire

From this questionnaire it can be seen that by in large the respondents felt included within the process of redesigning the consultant led clinic and satisfied with the outcome. When looking into the results of each question,
question one showed similarly positive attitude toward the extent of their inclusion within the clinic structure. Whereas question two shows that although both felt included the second respondent felt more included than the first within their inclusion of designing the new assessment form. Question three showed the same result of two out of seven on the likard scale indicating that both felt their input was taken into consideration. Question four showed a small difference in regard to how their input impacted the outcome of the project but the average still showed a positive degree of impact. Question five displayed the biggest difference between the respondents on how satisfied they are with the new clinic design as the first respondent was neutral score of four whilst the second respondent scored at two indicating a strong preference to being satisfied. Question six and seven both scored at one indicating that both participants felt very satisfied with the design of the new assessment form and their overall involvement in the project,

4.2.2. Clinic format questionnaire

The aim of the clinic format questionnaire was to quantify the teams’ opinion on the change clinic structure with view to operating efficiency. Figure 5 is a
the average score for each question before and after the change projects intervention. Across the team there was an improvement noted within each area. Question one showed an improvement in how well guided the clinicians felt in obtaining information as the score improved from 2.3 to 1 indicating a very well guided approach to gaining appropriate information. Question two showed a significant increase in how effectively clinicians felt there time was utilised as the score changed from 4.3 (indicating a negatively orientated opinion) to 1.7 indicating that the time was felt to be used very effectively. It is of note that question three looks to be a reversal of this trend of improvement, however it is not the case as by the figure changing from 3.3 to 5 indicates that clinicians felt they were pulled away (interrupted) less during an appointment than before the change. Question four shows the smallest
change in score following the intervention. By changing from 3 to 2.7 shows a minor increase in how the clinic structure enhanced the clinicians practice. The fifth and final question shows a significant improvement in how appropriate the structure was viewed to be by the clinicians. By the score changing from 3.6 which is marginally a positively orientated score to 1.7 which is a significantly positive score showing that the clinicians viewed the new clinic format as very appropriate for the type of appointments which they were performing.

4.3 Qualitative results

This section was undertaken by having unplanned interviews with the team once the first two clinics of the new structure had finished. The unplanned interview consisted of the author, the registrar, physiotherapist and occupational therapist having a five minute discussion at the end of the clinic. It revealed three issues that the team felt needed to be addressed. These were timekeeping during appointments, legibility of the recorded information in the assessment form and the suitability of the nine am appointment time. The team put forward the ideas of having a clock in the room in order to keep timekeeping at the forefront of everyone’s mind and also to have more tick boxes within each section of the assessment form to help speed up the note taking aspect and to improve the clarity when reading the form at a later date. The nine am appointment time was noted for review of attendance and timekeeping, at the review meeting. The feedback was by in large positive as the team were participating in continuous improvement of the project whilst it

~ 49 ~
was also noted that the assessment form had saved a lot of time outside of the clinic, as there was no longer the need for the therapists to write up individual notes in the afternoon following the clinic.

In summary the evaluation data from the objectives has proved to be encouraging. Whilst it has identified that appointment duration has increased which is not a desired outcome, it has shown that waiting time, assessment form completion rate and the clinic space utilisation rate have all improved. The questionnaires’ and qualitative data which are not objectives of the project but do facilitate management of the objectives have given evidence of the team perceiving the benefits and buying into the project whilst creation of a quality improvement culture within the team has become evident.

5. Discussion and conclusion

5.1 Introduction

This change management project set out to redesign a consultant led prosthetic clinic, which operated in the authors department on a weekly basis each Friday. The purpose of the clinic was for primary amputees to be assessed by the multi-disciplinary team with view to establishing suitability on prescribing prosthesis, whilst also providing access for established patients to be reviewed by the consultant and prosthetist. Approximately eighteen
months prior to initiating the project a new clinic structure and assessment form had been implemented based on a multidisciplinary team approach used in some NHS prosthetic centres in the UK, where by four patients were appointed for the same time and were assessed individually by a team member in rotation. Although this had advantages of effective time utilisation it had not been effectively implemented resulting in variation in appointment duration, variation in waiting time, interruptions to appointments as clinicians were asked to leave one session and join another session and an assessment form completion rate of forty five percent. The assessment form was designed to be completed by each team member; however this was misunderstood and was commonly thought to be for the prosthetist to complete.

The literature review revealed that there was a need to establish the current patient flow during the clinic so that delays can be identified and then the flow process mapped into a new flow using lean management principles (Anon, 2004) to eliminate delays whilst ensuring that each step of the process added value to the process purpose (Womack et al, 2005). It also showed that standardised documentation allowed for increased consistency in the quality of the documentation (Ungan, 2006) by reducing variation and that this could be achieved by having a standardised assessment form which all team members completed. In turn this would also assist in good communication (Tornvall & Wilhelmsson, 2007) forming the care plan which would be part of the outcome of the assessment appointments. In order to change the clinic structure and implement a new assessment form the HSE change model
(HSE, 2008) was used. This had four main stages in its design which were initiation, planning, implementation and mainstreaming. This chapter will aim to discuss the strengths and limitations of the project and also its organisational impact and recommendations.

5.2 Project strengths

In the author's opinion, one of the main strengths of the project was the understanding of the culture that was evident within the team. There were two aspects to this. One was that of interdisciplinary teamwork and the second was the communal culture (Goffee and Jones, 1998) identified during the situational analysis in the initiation phase of the project. The culture around interdisciplinary teamwork had developed from the in-patient setting, where the hospital had gained accreditation from the Commission on the Accreditation of Rehabilitation Facilities (CARF) by adhering to CARF standards. One of the foundations of the accreditation is for interdisciplinary team working, which was identified in the literature review as being appropriate for rehabilitation (Behm, 2011) due to its collaborative approach in skill utilisation to enhance problem solving. This relies on good communication amongst team members to be an effective model of practice. So strong was the belief in interdisciplinary practice that when the failed multidisciplinary model was brought forward for discussion, it drew a polite passive resistance from the two team members present. As this was in line with the introverted component of their personality trait, it was viewed as a strong form of resistance to the concept which was likely to intensify if the
method was improved. By contrast when the interdisciplinary assessment model was suggested it drew a much more positive response which added further weight to proceeding with that as the model for assessment. When used both models are effective in providing the relevant information to the team for decision making on the prescription outcome and forming a care plan. The resistance can not only be viewed as cultural but as self-interest (Kotter and Schlesinger, 2008) as individual practice has evolved around this model from both clinicians whom had only worked with the team post CARF accreditation and would represent a large degree of change to practice.

A corner stone of effective interdisciplinary work is good communication (Behm and Gray, 2010) within the team and this was also found within the communal culture (Goffee and Jones, 1998) with a positive slant as identified within the department. As communal cultures have a high degree of sociability and when a positive slant is evident, it will manifest itself in the teams’ behaviour with high level of social interaction where people can share ideas openly between each other. Although it can’t be said as to which culture developed first as this data is not available, it is undoubtedly the similarity between the identified cultures that bind the team model to the team culture. This was then able to be used by the author to help drive the change by reducing resistance at a conceptual level.

Building on the collaborative approach and the high levels of communication a further strength of the project could be argued to be the strategy of
participation and involvement (Kotter and Schlesinger, 2008). Again by drawing on these fundamental attitudes within the team further success was gained within a process mapping exercise, which proved a good tool of education for all members of the team. It became evident during the process mapping exercise that there were different levels of understanding by each stakeholder around the issues which surrounded the clinic as it had not been fully appreciated by the team as to the extent by which patients were being delayed by team members moving between patients in an unplanned way during appointments. It was a measure of this success that the process map was referenced by the team during clinics where such delays were occurring, which in the authors opinion demonstrated a good degree of buy in from the team. Whilst this degree of support for the project could be viewed with pleasant surprise on the basis of the failure of the previous attempt to change the clinic, it really depends on the point of perspective of the individual.

The previous attempt had failed essentially due to a lack of appreciation for the core beliefs and culture of the team. This derived from the physiotherapist, occupational therapist and consultant all working within the in-patient service under interdisciplinary team work model and having no other reference point from which to base their practice in the out-patient setting. The out-patient setting is indeed where the consultant led prosthetic clinic operates. In contrast to this the prosthetist’s work in the in-patient setting one day per week and four days per week in out-patient clinics which are multi-disciplinary based. Therefore it is the authors’ belief that it was of little importance what
structure was to be suggested, as to have an multidisciplinary model would mean that the degree of change to the in-patient based team was high and the impact on culture was high, meaning that there would be high resistance to the project with a low chance of success. By learning from this experience and proposing a new structure which had a low impact on culture and low degree of change (from the therapists’ perspective) indicated that a high chance of success was likely. It was hoped that by aligning the new process to established ways of working it would help embed it into the culture of the team so that it would become the new normal (Young, 2009).

Therefore when the presentation was performed to the team, little resistance was encountered. Although in some situations this may have been a passive form of resistance which was witnessed before, sufficient evidence of buy in to the project had been displayed to believe that the reaction was genuine. For example the team collaboration on the process mapping and the support for the move from multi-disciplinary team model to interdisciplinary team model. The only concern at this time for the author was from the pending departure of the consultant and the programme manager not yet having assumed their post. In a backdrop where there had been a degree of schismatic behaviour during past projects from major stakeholders, whereby full support of a project would be offered despite voicing beliefs that it was not progressing correctly without attempting to intervene. There was a concern that support of the project could reduce from a reduction in work placed motivation levels which may adversely affect the projects outcome. Although it did not occur it shall be discussed later in the chapter under limitations.

~ 55 ~
5.3 Project limitations

The main limitations of the project were that of delays and the qualitative nature of the assessment form. All of which will now be discussed.

Two main delays occurred in the project which limited the outcome at time of submission. Both essentially revolved around two main stakeholders in the process which culminated in a delay in starting the project and then a delay between the planning and implementation phase of the project. Chronologically the first delay was starting the initiation phase. Whilst this was aimed at September it did not start until January. The reason for this was that the authors’ employer had undergone staff change resulting in a senior prosthetist leaving the team and being replaced by a junior member in the same month (April) as the author was moved into the department manager position. This led to an increase in basic clinical work by the author whilst also managing the development of the new junior member of staff. Although a case could have been made to start the project and use the newly acquired positional power to negotiate obtaining protected time, it is arguable that this did not happen due to the context of the organisational change that had led to the authors’ promotion. In retrospect it is evident that the author was unconsciously accepting the new situation that the organisation had found itself in (Boonstra et al, 1998) and not that of his own objectives in relation to the redesign of the consultant led prosthetic clinic. This objective was not in line with the employers need to secure revenue generation following the loss of a revenue generating asset, which made it more likely that the true
definition of the authors own objectives at this time was to embed into the
department manager position and maintain the employers financial wellbeing.
This is understandable given that the desired outcome of the situation was
being consciously adjusted by the author to one that benefited both employer
and employee on the basis that it was fair (Bazerman, 2003) to all parties
given the authors desire to succeed and justify his promotion. Essentially this
links to the second level of Maslow's hierarchy of needs (Maslow, 1943) which
is safety and security, in this case preserving and establishing the author in a
new position. From empirical knowledge this had always been viewed as a
challenging position due to the demands placed upon the individual
concerned.

The second major delay to affect the project occurred unfortunately due to
consultant/service director sick leave, which accounted for a one month delay
between March and April. Although evidence suggests that the longer the
duration of a change management project the more likely it is to succeed
(Sirkin et al, 2005), the reality of the situation was that work based pressures
that had developed following the projects inception such as drive for revenue
and the implementation of a new IT system were drawing significant amounts
of the authors time and energy which in combination with this new unexpected
delay was putting the project at risk of failure by testing the authors resilience.
Whilst ultimately this did not happen, it limited the project by influencing the
authors’ decision on not seeking an extension in order to complete the project
and eliminating a source of stress by completing it within the time frame. Had
an extension been sought then it would have allowed for the project to have
been written up at a later date with increased levels of data from the mainstreaming phase to be incorporated.

In the consultants/service directors’ absence and with the new programme manager yet to take up their post the team did not view it appropriate to proceed with the project until the situation had resolved. Although the project could have progressed quite effectively in the absence of afore mentioned stakeholders the reason it did not, in the authors opinion, comes down to the leadership style within the department that is the power culture (Handy, 1999). Using this model it can be seen that the consultant/director of service is at the centre of the team exerting expert power to control the team into achieving results for the patient. Non-consultant led initiatives generally progress from the ability to influence the consultant by other team members as opposed to another designated team member making the decision. It was inevitable that the leave of absence would have resulted in a time delay to the project. However when pondering the question of why this situation exists and if it is appropriate to the department when it is delaying this project but possibly other initiatives or decisions too, then the hospital management’s influence over consultants must be considered. Not only with specific relation to this project but as a general concept. Essentially whilst working in the same organisations consultants are governed by a set of values and principles different to that of managers, the hospital board or even the nurses/therapists (Glouberman and Mintzberg, 2001). This has resulted in them becoming a separate entity within the hospital with which they are involved with and are technically independent of its formal authority whilst directing their activities.
into operations of delivering the service to the patients. The hospital board, management and nurses/therapists can also be viewed as separate entities within this concept making the four organisational components of the hospital disconnected, which it would be argued gives rise to a culture of physician autonomy (Bridea, 2004).

In a situation whereby the nurses/therapists and consultants are acting toward a service delivery initiative then common ground would be found to progress on, although the nurses/therapists would remain under hospital management control whilst the consultants would not. This would lead to a situation whereby the consultants and management would have to collaborate together to achieve the desired goal, with the challenge being that the management would have very little influence over the consultants given that the consultants view the hospital as a place they work and not as their employers (Glouberman and Mintzberg, 2001). When translated into the context of this project where the situation had arisen of the new programme manager not yet being in place, full responsibility was with the consultant who had considerable influence over the previous programme manager. Therefore when neither person was present the only two options to continue with the project and avoid delay were either to proceed without formal permission which would have been out with the authors’ responsibilities or to seek approval from the CEO. Given the context of the organisational structure the author deemed that to proceed would have made the project unsustainable in the long term, as the returning consultant would have viewed that action as
inappropriate in the absence and would likely have disengaged with supporting the project. Such a risk was not justified.

The other limitation of the project was the qualitative nature of the assessment form (see appendix 13). The content of the assessment form was taken from existing assessment forms used in the in-patient and out-patient setting in order to facilitate construction of the patient care plan. Whilst the factors used to predict ability of prosthetic use were taken from publications identified during the literature review and empirical knowledge.

This has led to the team acknowledging the assessment form to be very comprehensive with more sections to complete than the previous assessment form, but has been well received by all the team. However as the majority of the content have blank boxes with headings and examples at the top of the box, it has caused an issue with appointment duration and legibility. This was identified by the team during feedback interviews as they acknowledge that the time is too long, although they are suggesting methods of improving this. Upon reflection there are two main reasons as to why this occurred. Firstly that the predictive factors found in Sansam’s 2009 publication outlined each factor but did not stipulate in a format that could be entered into a tick box format, which in combination with predetermined standardised measurements and tests will reduce completion time (Swinkels et al, 2011). Also the same situation was found within the assessment forms that were already in use throughout the department. Whereby data boxes that were populated by
written information had been incorporated into their design, giving a situation where there were a limited number of tick box style sections to be added to the new form. One possible solution to this issue would have been to retrospectively perform a contents analysis on the assessment forms already in use; so that the most commonly entered data could be obtained and set up in tick box style. However, due to the external work places pressures already outlined and with no other resources available to assist in the project, the author was unable to progress the assessment form in this manner. It will however be discussed in the recommendations section.

Legibility of the form post completion was also deemed to be an issue. During the evaluation stage the author reviewed the completed assessment forms and found the legibility to be low in some instances. From having been involved with the assessments it was known to have occurred when either time was pressurised or from individual hand writing styles. Although there is familiarity within the team of hand writing styles, it is an issue that needs to be improved upon so that team members who rotate onto the team are able to read the documentation and absorb all the available information to enhance communication.
5.4 Organisational Impact

Although the mainstreaming phase of the project is in its infancy, there is much to ponder on the impact that the new clinic structure is having on the team. As the evaluation phase showed that the assessment form completion rate improved by 55% and the average patient waiting times reduced by 75%, it can be considered to be an improvement in performance.

When outlined against the four p model (purpose, process, people and performance) whereby the performance comes from a synergy of purpose, people and process, the improvements can be seen in context of the organisation. Where as in the previous clinic model there were knowledgeable people with strong values of interdisciplinary team working using different forms of documentation trying to work in a process that was not aligned to either people or purpose. It is understandable that the performance level was low in areas such as assessment form completion rate and patient waiting time. Whereas with the new clinic structure the values and beliefs, expectations of the people have been aligned to the processes which facilitate interdisciplinary team working to meet the purpose of the clinic which has led to the improved performance level.

Building on the changes which improved the clinics performance, gives opportunity to improve the preparation work on the care plan by continuous revision of the assessment form. Whilst the need for changing the qualitative
nature of the assessment form was discussed under the limitations section of chapter five, further drafts of the assessment form will be able to incorporate sections of the more peripheral team members involved during the primary rehabilitation phase, such as dietetics, medical social work and psychology. Although careful consideration would need to be given to the size and data recording method within each section so as to avoid issues of validity, reliability and time management, it does none the less give significant opportunity to enhance the clinical information recording and subsequent efficiency and quality of the patient care plan.

Underpinning afore mentioned areas is that of a quality improvement culture being initiated amongst the team. The author would argue that this has developed from the leadership shown in developing the project and the subsequent buy-in from the team who understood the opportunity to improve their own practice. Whether or not the positive response to the project will remain, is no doubt resting on the leaders’ ability to focus the team. In order to refine the assessment form and the clinic process in the wake of new challenges or initiatives that will emerge as time progresses. At present this culture stands to have a substantial impact on the organisation as a culture of quality improvement had been intermittently evident due to a lack of leadership when areas of improvement were raised. Certainly with regard to the consultant led clinic, team members withdrew from approaching areas where they perceived improvements could be made. Possibly due to the perceived complexity of the issues or possibly due to uncertainty around the leadership of any proposed initiative. Whilst the author would argue that both
are valid, it none the less remains that if used appropriately this will have a substantial impact on the organisation out with the project.

5.5 Recommendations

By redesigning the process by which patients are seen at the consultant led prosthetic clinic and by introducing a new assessment form, efficiency gains have been made and a culture of continuous quality improvement is developing. This must be utilised to good effect by continuing to develop the assessment form to incorporate the peripheral therapies who are involved during primary admissions to the service, allowing for a more comprehensive care plan to be developed. Additionally the qualitative nature of populating the assessment form should be revised to tick box style where appropriate by reviewing the data entered. By doing so, it will make the form quicker to complete without compromising the quality of the content. In addition to this timekeeping by the team needs to be improved during the patient appointments so that the allocated appointment time can be adhered to. Evaluation of the first two clinics showed that this is an area for improvement.

Finally regular review dates of the project objectives have been set at monthly intervals so that any changes within the evaluation objectives can be monitored and so that the new consultant and programme manager be educated on the project. By doing so, the assessment form can be used to
offer guidance on clinical practice to the new consultant whilst also benefiting from new insight.

5.6 Conclusion

The aim of the project was to redesign the consultant led prosthetic clinic. In order to do so the clinic process was redesigned and complimented with a new assessment form. Evaluation parameters were determined at the onset. By selecting the HSE change model the author was able to adapt to changing circumstances which developed during the course of the project. Whilst the changing circumstances were largely outside of the authors control and represented a significant threat to the success of the project. The project has never the less managed to set in motion a change that has benefited the team and most importantly the patients. Although appointment duration has increased by 20% which was not intended, clinic space utilisation increased, waiting times reduced by 75% and assessment form completion rate improved by 55%. With the initiation of a quality improvement culture within the team now becoming evident, there is every opportunity for the efficiency of the redesigned clinic to keep on improving into the future.
Reference List


Audit Commission. (2002). Ear Nose and throat and audiology services: access to care.


~ 68 ~


~ 69 ~


Appendices

Appendix 1: SWOT analysis

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Well educated team</td>
<td>• Prosthetic department layout</td>
</tr>
<tr>
<td>• Dedicated team</td>
<td>• Low Staffing levels</td>
</tr>
<tr>
<td>• Need to change acknowledged by team</td>
<td>• Note keeping from therapists</td>
</tr>
<tr>
<td>• Supportive consultant</td>
<td>• Leadership structures</td>
</tr>
<tr>
<td>• Supportive evidence to change</td>
<td>• Time consuming paperwork</td>
</tr>
<tr>
<td></td>
<td>• Change in IT system</td>
</tr>
<tr>
<td></td>
<td>• Nursing cover available on call</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>• New rehabilitation consultant starting in March</td>
<td>• Change in Programme manager</td>
</tr>
<tr>
<td>• Increase in request for clinical information in new prescriptions</td>
<td>• Transport to hospital</td>
</tr>
<tr>
<td>• Improve documentation</td>
<td>• Slowdown in sanction times</td>
</tr>
<tr>
<td>• Reduce delays</td>
<td>• Staff changes and shortages</td>
</tr>
<tr>
<td>• Improve clinic space utilisation</td>
<td>• Change in IT system</td>
</tr>
</tbody>
</table>

~ 71 ~
## Appendix 2: TOWS analysis

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• New Interdisciplinary assessment form</td>
<td>• Utilise available clinical space</td>
</tr>
<tr>
<td></td>
<td>• Standardise documentation</td>
<td>• Maximise clinician time with patients</td>
</tr>
<tr>
<td></td>
<td>• Improve care plans</td>
<td>• Run parallel clinics</td>
</tr>
<tr>
<td></td>
<td>• Redesign clinic process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(strategies for advancement)</td>
<td></td>
</tr>
<tr>
<td>Threats</td>
<td>• Stay with Friday as allocated day to avoid transport and staff availability issues</td>
<td>• Investigate room redesign once project has begun</td>
</tr>
<tr>
<td></td>
<td>• Obtain consultant support</td>
<td>• Avoid any transport schedule issues</td>
</tr>
<tr>
<td></td>
<td>• Establish nominated leader</td>
<td>• Redistribute paperwork over the team</td>
</tr>
<tr>
<td></td>
<td>(avoid threats)</td>
<td></td>
</tr>
</tbody>
</table>

(overcome weaknesses)

(avoid and overcome)
## Appendix 3: PESTLE

| Political                  | • Changing rehabilitation service delivery model  
|                            | • Increase in number of rehabilitation consultants  
|                            | • Pending change in procurement policy  
|                            | • Haddington road agreement  
|                            | • Irish association of prosthethist and Orthotist  
|                            | • Strategic partnership  
|                            | • Commission of Accreditation for Rehabilitation facilities  
| Economic                   | • Slowdown in sanction times  
|                            | • Staff cut backs  
|                            | • Availability of transport  
| Social                     | • Reduction in take home pay across general public  
|                            | • Increased need for family support  
|                            | • Aging population  
| Technological              | • High definition link  
|                            | • Increasing component cost  
|                            | • Change in IT system  
| Legal/Ethical              | • HIQA safer better healthcare  
|                            | • No regulatory body for prosthetics and orthotics  
| Environmental              | • New hospital project  
|                            | • Poor clinical space layout  
|                            | • Hospital accessibility from local road works  

~ 73 ~
## Appendix 4: Stakeholder analysis

<table>
<thead>
<tr>
<th>Importance</th>
<th>Influence</th>
<th>Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse Manager</td>
<td>Consultant/director of service</td>
<td>Authors employer</td>
</tr>
<tr>
<td>Community Transport</td>
<td>Programme manager</td>
<td></td>
</tr>
<tr>
<td>Team administration staff</td>
<td>Senior Physiotherapist</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physiotherapist</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Senior Occupational therapist</td>
<td></td>
</tr>
<tr>
<td>Occupational therapy manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physiotherapy manager</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 5: Goffee and Jones Cultural analysis results
## Appendix 6: Force Field analysis

<table>
<thead>
<tr>
<th>Drivers</th>
<th>Resistors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Financial change of prescriptions and staffing costs</td>
<td>• Staff resistance to change</td>
</tr>
<tr>
<td>• Effective use of staff time during clinic</td>
<td>• Clear operational structure</td>
</tr>
<tr>
<td>• Prosthetist's limited in ability to see patients not needing consultant</td>
<td>• Team perception of quality of assessment</td>
</tr>
<tr>
<td>• High patient volume</td>
<td>• Fear of change</td>
</tr>
<tr>
<td>• Variation in patient waiting times</td>
<td>• Perceived challenge to authority</td>
</tr>
<tr>
<td>• Variation in patient appointment duration</td>
<td></td>
</tr>
<tr>
<td>• Inconsistent completion of assessment form</td>
<td></td>
</tr>
<tr>
<td>• Inconsistent documentation from therapists in healthcare records</td>
<td></td>
</tr>
<tr>
<td>• Inconsistent assessment format</td>
<td></td>
</tr>
<tr>
<td>• Therapists sessions interrupted to go and join a different session upon consultant request</td>
<td></td>
</tr>
<tr>
<td>• Unclear assessment format</td>
<td></td>
</tr>
<tr>
<td>• No clear leader during clinic</td>
<td></td>
</tr>
<tr>
<td>• General staff time constraints</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 7: Established state process map

1. Patient attends clinic → Wait → Patient booked into clinic by administration staff → Wait → Consultant allocates medic to patient
2. Assessment starts → Patient taken to clinic room → Consultant allocated to patient
3. Flow follows identical path as per consultant allocation and run in parallel
4. Second consultant allocated to patient
5. Registrar allocated to patient
6. Second registrar allocated to patient
Can Occupational therapist start assessment?

Is a change of room necessary?

Assessment complete

Can Prosthetist start assessment?

Is a change of room necessary?

Assessment complete

Assessment complete

Is a change of room necessary?

Assessment complete

Can Occupational therapist start assessment?
Has everyone completed their assessments?

- **Has the medic completed their section?**
  - **No**
  - **Yes**

- **Is the medic available?**
  - **No**
  - **Yes**

- **Can the medic be found?**
  - **No**
  - **Yes**

- **Can an alternative be found?**
  - **No**
  - **Yes**

- **Room changed**
  - **Wait**

- **Medic completes assessment**
  - **Wait**
  - **Yes**
  - **No**
Has the Prosthetist completed their section? 

- Yes: Proceed without prosthetist.
- No: Can a prosthetist be found?
  - Yes: Proceed without prosthetist.
  - No: Wait
  - No: Wait
  - No: Wait
  - No: Prosthetist completes assessment

Is a Prosthetist available? 

- Yes: Proceed without prosthetist.
- No: Can a prosthetist be found?
  - Yes: Proceed without prosthetist.
  - No: Wait
  - No: Wait
  - No: Prosthetist completes assessment

Is a change of room needed? 

- Yes: Wait
- No: Room changed

Does team need a prosthetist? 

- Yes: Prosthetist completes assessment
- No: Have all available team members completed assessment

Have all available team members completed assessment? 

- Yes: Prosthetist completes assessment
- No: Wait
Does patient need community services?

- Yes
  - Wait
  - Are community services available?
    - Yes
      - Team inform patient
      - Patient leaves department
      - Prosthetist writes up health care records
      - End
    - No

- No

Are in-patient services appropriate?

- Yes
  - Team inform patient
  - Patient leaves department
  - Patient listed for admission to hospital
  - Prosthetist writes up health care
  - End

- No

Are day-patient services appropriate?

- Yes
  - Team inform patient
  - Patient leaves department
  - Prosthetist writes up health care
  - End

- No

Does consultant think further action is appropriate?

- Yes
  - Team inform patient
  - Patient leaves department
  - Prosthetist writes up health care
  - End

- No
Appendix 8: New process map

1. Patient attends clinic
2. Patient booked into clinic by admin
3. Patient taken into clinic room
4. Assessment starts
5. Medic performs assessment
6. Physiotherapist performs assessment
7. Occupational therapist performs assessment
8. Prosthetist performs assessment and completes assessment form
9. Assessment ends
10. Team enters meeting room
11. Team members present findings
12. Team agree on predicted activity level
13. Is a prescription to be raised?
   - Yes: Prosthetist proposes prescription
   - No: Team inform patient
14. Prescription amended if appropriate
15. Team agree on suspension and knee
16. Prosthetist proposes prescription
17. Patient given information package

~ 85 ~
Does patient need reassessment?

Is in-patient service appropriate?

Is Day-patient service appropriate?

Is community referral appropriate?

Medic decides on course of action

Interdisciplinary team set goals

Wait

Is community service available?

Medic informs patient of decision

Patient leaves department

~ 86 ~
Prosthetist completes assessment form and staples together and stores in health care record

Prosthetist records in health care record

Are any assessment patients waiting to be seen?

Yes

End

No
Appendix 9: Consultant review process map

1. Patient attends clinic
2. Patient booked into clinic by administration staff
3. Wait
4. Patient taken into room by consultant
5. Consultant reviews patient
6. Prosthetist reviews patient
7. Does prosthesis need adjusting?
   - Yes: Limb adjusted in workshop
   - No: Prosthetist writes prescription
8. Is prescription to be raised?
   - Yes: Prosthetist writes prescription
   - No: Patient leaves department
9. Limb returned to patient
10. Patient leaves department
Appendix 10: Team presentation

Redesign of Friday Clinic
Primary assessment & Consultant/Prosthetist review

Reasons to Change
- Present format
  - Set up for an MDT rotation
  - Four patients appointed at 9.30am
  - Rotation structure has not been successfully implemented

Reasons to Change
- Assessment and Review appointments prone to overlapping
  - Therapists can be pulled away to attend other appointments
  - Assessment appointments can become long disjointed in this scenario

Reasons to Change
- Current Assessment form is single disciplinary design
- No formal structure for all IDT to record within HCR
- Low assessment form completion rate

Opportunities
- Redesign Friday clinic process
  - Prevent overlap between assessments and reviews
- Parallel clinics
  - Assessment clinic and consultant review clinic
- Facilitate IDT assessment

Opportunities
- IDT assessment form
  - Provide baseline information for possible admissions
  - Facilitate documentation from all therapies into HCR
  - Provide opportunity for improved information to other disciplines
Constraints

- Staffing
  - No Occupational therapy or Physiotherapy cover for therapist leave
  - Nursing cover “on call” during clinic

- Building Layout
  - Department layout not ideal to facilitate assessment and review clinics running in parallel
  - Two main fitting rooms
  - Male and Female
  - One room suitable for redesign (female casting room)

2013 Data

- Assessment clinic
  - 38 assessment clinics held in 2013
  - 98 attendances
  - 7.14% DNA rate (n=7)

- Assessment clinic
  - Average wait time was 29 minutes
  - Shortest wait 10 min
  - Longest wait 50 min
  - Average per clinic of 2.5 patients
  - Smallest attendance was 1
  - Largest attendance was 7
  - Average appointment time was 63 minutes
  - Shortest 20 min
  - Longest 1 hour 45 min

2013 Data

- Insufficient data to establish correlation between length of assessment appointment and length of review appointment

- Empirical knowledge suggests that once overlap occurs, assessment time gets longer and information handover starts to occur

2013 Data

- Change of prescriptions post admission
  - 38 of 98 primary patients admitted post assessment as of 15/2/14
  - 18.4% had change in prescription (n=7)
  - 54% of change in prescriptions had assessment forms complete
  - 85.7% of change in prescriptions made free of charge to HSE

Either assessment or review clinic cancelled to accommodate staff leave
Typically increased attendances prior to or after leave to prevent delays

~ 90 ~
2013 Data

- Change in prescriptions during admission
  - Interface material: 14.2% (N=1)
  - Knee type: 14.3% (N=1)
  - Suspension: 71.4% (N=5)

<table>
<thead>
<tr>
<th>Prescription change</th>
<th>AK</th>
<th>BK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Knee type</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Suspension</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

2013 Data

- Length of admission

<table>
<thead>
<tr>
<th></th>
<th>Average AK (days)</th>
<th>Average BK (days)</th>
<th>Total Average (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average length of stay</td>
<td>56.7</td>
<td>49.15</td>
<td>54</td>
</tr>
<tr>
<td>Interface change</td>
<td>24 (n=1)</td>
<td>61 (n=1)</td>
<td></td>
</tr>
<tr>
<td>Knee change</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspension change</td>
<td>74 (n=2)</td>
<td>36.7 (n=3)</td>
<td></td>
</tr>
</tbody>
</table>

- Review appointments
  - 20min average wait time for review
    - Minimum wait 5min
    - Maximum wait 50min

- Length of review appointment time
  - 30 min average
    - Minimum length 15min
    - Max length 1 hour 35 min

2013 Data

- 246 review appointments
- 42 clinics
- 4% DNA rate (n=10)
- Average of 6.7 patients per clinic
  - Lowest 1 patient
  - Largest 11 patients

Proposal

- Redesign the Friday clinic process
  - Separate the assessment clinic from the review clinic
  - Bring the assessment process into line with IDT working

- Design an Interdisciplinary team assessment form
Proposal

**Assessment clinic – capacity and demand**
- **2013 demand**
  - Total attendances + cancellations + DNA’s = 195 appointments
- **2014 forecast**
  - Available clinic days in 2014 is 52-3=49 days
  - 105/49 = 2.14 patients per clinic
  - Possible to set capacity to 3 patients per clinic
  - Assumes that medical cover is always present
  - Physio and OT cover need to be discussed

**Proposal**

**Assessment process redesign**
- Use the female cast room to free up the two main fitting rooms
- Set assessment appointments to run for one hour minutes starting at 9:00, 10:00 and 11:00
- Have an overflow slot of 12:00 in case of high demand
- Therapist rotate in order to complete IDT form
  - Doctor, Physio, OT, Prosthetist
  - Each team member has relevant part of form in hand to complete

**Proposal**

**Facilitates uninterrupted assessment process**
- Removes patient hand over in the event of being requested to attend a different assessment session

**Prosthetist to rotate on weekly basis**
- Weekly Prosthetist rotation between Iain and Dimitri
- Frees up xxxx and xxxx for consultant review or Prosthetist only appointments
- Facilitates xxxx and xxxx having two Fridays per month for consultant review or Prosthetist only appointments

**Proposal**

**Advantages**
- By having assessment in one room stops overlap issues with review clinic
- Frees up two main fitting rooms for review clinic
- Facilitates IDT working
- Doesn’t depend on consultant being present
- Low operational change required
- Is in line with hospital philosophy

**Disadvantages**
- May require room redesign to maximise efficiency
- May require additional individual room if time over run during assessment
- Therapist not available for consultant review clinic

**Proposal**

**Consultant Review Clinic**
- Appointments to start at 9am
- **2013 demand**
  - Total appointments + cancellations + DNA = 250 appointment slots
- **2014 forecast**
  - Available clinic days 52-3=49 days
  - Clinic capacity 24/49 = 0.49 rounded up to appointment slots per clinic
  - Assumes medical cover is always available
  - Time slots of 30 minutes
  - Runs from 9am to 11:30 am with two overflow appointment times if high demand (12 and 12:30)

**Discussion**

- **IDT assessment form**
  - Any amendments requested

- **Assessment clinic**
  - Any process amendments
  - Room suitability
  - Assessment length (60 mins)
  - Support media: OT and physio when used
  - Non-M mentioned on call

- **Review clinic**
  - Cataracts + others
  - OT and prosthetist not involved unless arrangement made on the day
Recommendations

- If team is in agreement then implementation on Friday 25th April.

- Proposal to redevelop female casting room into a multi-functional room
  - 1x Parallel bars, 1x double plinth, 1x casting chair, 1x sink
  - Removal of current storage cupboards
Appendix 11: Participation questionnaire

**Friday clinic Questionnaire**

Thank you for taking the time to complete this questionnaire. It is aimed at gathering your thoughts on the present format of the Friday clinic. Please circle the number you consider appropriate.

1. **To what extent do you feel guided in obtaining appropriate information during a patient assessment?**
   
   1  2  3  4  5  6  7
   
   Very well guided  Not well guided

2. **To what extent do you feel your time is utilised effectively during a patient appointment?**
   
   1  2  3  4  5  6  7
   
   Very effectively  Not very effectively

3. **How often do you feel that you are pulled away from a patient session during the clinic?**

   1  2  3  4  5  6  7
   
   Very often  Not very often

4. **To what extent does the current clinic structure enhance your practice?**

   1  2  3  4  5  6  7
   
   Very enhanced  Not very enhanced

5. **To what extent do you consider the current clinic format appropriate for assessment and review appointments?**

   1  2  3  4  5  6  7
   
   Very appropriate  Not very appropriate

**THANK YOU**
Appendix 12: Clinic redesign questionnaire

Thank you for taking time to complete this questionnaire. It is aimed at evaluating your experience of redesigning the Friday clinic. Please circle the number you consider appropriate.

1. To what extent did you feel included in the process of redesigning the clinic structure?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very included</td>
<td>Not very included</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. To what extent did you feel included in the designing of the IDT assessment form?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very included</td>
<td>Not very included</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. To what extent do you feel your input was taken into consideration during the project?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very</td>
<td>Not very considered</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. To what degree do you feel your input impacted on the final outcome of the project?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Degree</td>
<td>Low Degree</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. How satisfied are you with the new design of the Friday clinic?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>Not very satisfied</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. How satisfied are you with the new design of the IDT assessment form?

1 2 3 4 5 6 7

Very Not
very Satisfied
Satisfied

7. To what extent are you satisfied with your involvement in the project?

1 2 3 4 5 6 7

Very Not
very Satisfied
Satisfied

THANK YOU
Appendix 13: Interdisciplinary Team assessment form

Out-patient Interdisciplinary Assessment form

The purpose of this document is to inform the rest of the patient's medical, social and psychological status to allow an appropriate care plan to be formulated. This may include a psychiatric presentation.

Doctor to complete Sections 1 – 17

1. Questions

2. Past Medical History

3. Medications

4. Image(s)

5. Medication Status (passive)

   - N/A
   - Meds
   - VMS
   - Other

1. Outpatient Interdisciplinary Team assessment form: Pitot version 1.0 1/6/14

2. Outpatient Interdisciplinary Team assessment form: Pitot version 1.0 1/6/14

~ 97 ~
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11. Medical observation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>12. Nutritional</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Skin Condition</strong></td>
<td></td>
</tr>
<tr>
<td>e.g. dry skin, etc.</td>
<td></td>
</tr>
<tr>
<td>Medical Limit</td>
<td></td>
</tr>
<tr>
<td><strong>13. Sensation</strong></td>
<td></td>
</tr>
<tr>
<td>Motor function: touch, proprioception, sensation, temperature, pain, normal, impaired, absent</td>
<td></td>
</tr>
<tr>
<td>Medical Limit</td>
<td></td>
</tr>
<tr>
<td><strong>14. Circulation</strong></td>
<td></td>
</tr>
<tr>
<td>e.g. paresthesia, brachial plexus injuries, etc.</td>
<td></td>
</tr>
<tr>
<td>Medical Limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>20</td>
<td>Upper limb (ROM, strength, ability)</td>
</tr>
<tr>
<td>21</td>
<td>Lower limb (ROM, strength)</td>
</tr>
<tr>
<td>22</td>
<td>HIP (strength, alignment, pain)</td>
</tr>
<tr>
<td>23</td>
<td>Respiratory status (e.g., chest, lung, airway, accessory muscles)</td>
</tr>
<tr>
<td>24</td>
<td>Preoperative status</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Infection status</td>
</tr>
<tr>
<td>26</td>
<td>Allergies</td>
</tr>
<tr>
<td>27</td>
<td>Medication use</td>
</tr>
<tr>
<td>28</td>
<td>Preoperative fitness</td>
</tr>
<tr>
<td>29</td>
<td>Other</td>
</tr>
</tbody>
</table>

*Outpatient inter-disciplinary team assessment form. RAS version 1.0 18/2/14*
### Occupational Therapy: complete sections 20 – 44

<table>
<thead>
<tr>
<th>21. Current condition</th>
<th>Discharge date if appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Activities of daily living (e.g., dressing, grooming, eating)</td>
<td>Pre-examination</td>
</tr>
<tr>
<td></td>
<td>Post-examination</td>
</tr>
<tr>
<td>23. Impact of illness on daily activities (e.g., dressing, grooming, eating)</td>
<td>Pre-examination</td>
</tr>
<tr>
<td></td>
<td>Post-examination</td>
</tr>
<tr>
<td>24. Housing situation (e.g., accessibility, aids, adaptive needs, application status, community OT involvement)</td>
<td></td>
</tr>
</tbody>
</table>

---

9. Outpatient inter-disciplinary team assessment form: Pilot version 1.018/2/14

10. Outpatient interdisciplinary team assessment form: Pilot version 1.0 18/2/14

~ 101 ~
### Prosthetist to complete sections 45 - 52

### 45. Activity level prior to amputation
- (e.g. indoor, outdoor, walking, etc.)

### 46. Activity level post-amputation
- (e.g. walking, standing, using crutches, etc.)

### 47. Residual limb condition
- Diagram:
- Diagram:
- Shin/proximal:
  - (length and circumference in cm)
- Ankle for consideration:
  - (e.g. prominence, alignment)

### 48. Information/Knowledge database
- Relevant to date of understanding

<table>
<thead>
<tr>
<th>Topic</th>
<th>Assessment of patient understanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact on fluid retention and comfort</td>
<td>Good</td>
</tr>
<tr>
<td>Increased energy expenditure when walking</td>
<td>Good</td>
</tr>
<tr>
<td>Limitations of prosthetic joints</td>
<td>Good</td>
</tr>
<tr>
<td>Self-administration of residual limb</td>
<td>Good</td>
</tr>
<tr>
<td>Building up limb using prostheses</td>
<td>Good</td>
</tr>
<tr>
<td>Cosmetic options and qualities</td>
<td>Good</td>
</tr>
<tr>
<td>Personal care when using prostheses</td>
<td>Good</td>
</tr>
<tr>
<td>Consideration of footwear for leg height</td>
<td>Good</td>
</tr>
<tr>
<td>Suctioning process</td>
<td>Good</td>
</tr>
</tbody>
</table>

### 49. Further Physiotherapy involvement assessment (pass check)
- Yes | No

### 50. Weight (kg)
- With limb on
- Without limb
Assessment Summary

Main Diagnosis (SPECIFY)

Details:

Impairments:

Activity Limitations:

Participation Restrictions:

1. Patients: 

2. Patient to be shown exercises (please check):
   - [ ] Yes
   - [ ] No
   - [ ] Other (please specify):

3. Other:

4. Other:

5. Other:

6. Other:

7. Other:

Outpatient interdisciplinary team assessment form: Pilot version 1.0 18/2/14
Consensus based assessment outcome

- Prescription (please state)  Yes  No  Not yet
  - Reason if not yet .................................................................

- Predicted Mobility Level (e-code for amputee assessment, SIGAM for in-patient assessment)
  - SIGAM grade  A  B  Cb  Dc  Dc  Dc  Dc  Dc  Dc  Dc

- Prescription

  - Suspension:  Medication for U/L considerations
  - Sedat:
  - Sed/Anx:

  - Hip:
  - Knee:

  - Foot:

  - Cosmas:

  - Other:

- Problem list
  1.
  2.
  3.

- Prescription Goals
  1.

- Goals to be met through clinical audit:
  - Community services  NHM in-patient  NHM day-patient  NHM out-patient

  - Therapist Co-ordinator: ............................................................
Appendices

1.学院 GPA - 专业升学 - 根据 GPA
   0.5 无成绩
   1.0 可以通过的肌肉连接但没有移动
   2.5 肌肉与重力平衡
   4.0 肌肉与重力的强度
   5.0 肌肉与重力的强度

2. A-Codes Definition

<table>
<thead>
<tr>
<th>Code</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIL</td>
<td>User does not use a prosthetic limb.</td>
</tr>
<tr>
<td>ATL</td>
<td>User has the ability to use the prosthesis for transfers or walking on flat surfaces for short periods of time. Typical of the prosthetic demands of a limited household/cosmetic user.</td>
</tr>
<tr>
<td>AIL</td>
<td>User has the ability to use the prosthesis for walking on uneven surfaces or overcome limited environmental barriers at fast cadence. Typical of the prosthetic demands of a limited community or household user.</td>
</tr>
<tr>
<td>AIL</td>
<td>User has the ability to walk with variable cadence. This is typical of a user who has the ability to overcome many environmental barriers and may engage in conditioned or leisure activities that demand prosthetic utilization beyond simple locomotion. Typical of the prosthetic demands of an active adult.</td>
</tr>
<tr>
<td>AIL</td>
<td>User has the ability to take advantage of assistive devices. This is typical of a user who has active walking skills that exceed basic walking skills, exhibiting high impact shoes or energy levels. Typical of the prosthetic demands of a very active adult or athlete.</td>
</tr>
</tbody>
</table>
Appendix 14: Gantt chart

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
<th>Revised Date</th>
<th>Date completed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process map current assessment process</td>
<td>20th December</td>
<td>6th January</td>
<td>10th January</td>
<td>OT and Physio not available week of 20th December</td>
</tr>
<tr>
<td>Define evaluation parameters</td>
<td>19th January</td>
<td>10th January</td>
<td></td>
<td>appointment wait and length of time taken, sanction time, in-patient length of time, % in-patients change of prescription, cost of change of prescription and who paid, number of prosthesis only appointments before and after change</td>
</tr>
<tr>
<td></td>
<td>10th January</td>
<td>31st January</td>
<td>1st February</td>
<td>will use patient wait time, wait time variation, appointment duration and duration variation, assessment form completion rate, clinic space utilisation</td>
</tr>
<tr>
<td>select change model</td>
<td>27th December</td>
<td>27th December</td>
<td></td>
<td>HSE change model</td>
</tr>
<tr>
<td>situational analysis</td>
<td>27th December</td>
<td>31st January</td>
<td>4th February</td>
<td>therapists needed for cultural and personality analysis</td>
</tr>
<tr>
<td>- review situational analysis with view to using information to assist in moving to new process design</td>
<td></td>
<td></td>
<td></td>
<td>use in write up</td>
</tr>
<tr>
<td>Literature Review</td>
<td>5th January</td>
<td>13th April</td>
<td></td>
<td>entering literature into mendely</td>
</tr>
<tr>
<td>- change models</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Healthcare team models</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

~ 107 ~
| - resistance to change |  |  |  |
| - power and influence |  |  |  |
| - documentation |  |  |  |
| - outcome measures |  |  |  |
| - assessment form |  |  |  |
| - capacity and demand |  |  |  |
| - predicting prosthetic mobility levels SIGAM, A code, |  |  |  |
| - process design |  |  |  |

| Process map new assessment process | 12th January | 31st January | 9th February | team requested IDT format so process redesigned to facilitate. Draft 1 completed by 11/1/14 |
| - assessment patient triage | 12th January | 21st April | 15th April | consultant to continue with this |

| Redesign consultant review process | 12th January | 11th February | 23rd February | collate review data first to establish demand, look for the length of time for assessments, any overlap with reviews and their wait times/length of appointment times, set start times and capacity based on evidence from spreadsheet |

| Define evaluation parameters | 19th January | 19th March | 19th March |  |

| - appointment waiting times for assessment and reviews, actual appointment length time, change of prescription during admission, cost of change of prescription, length of stay of when prescription changed v not changed, % completed assessment forms, | 19th January | 31st January | 1st February | spreadsheet complete, delays due to chart accessibility in hospital |

| Design Draft one of assessment document | 19th January | 31st January | 9th February | IDT assessment form drafted, team to review |

<p>| Team to review draft 1 of IDT assessment document | 11th February | 18th February | 18th February | form redrafted to reorder OT section and include consultant request for summary and further points for assessment, sent to team for review 16/2/14 |</p>
<table>
<thead>
<tr>
<th>Task</th>
<th>2nd February</th>
<th>2nd February</th>
<th>23rd February</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyse data as per evaluation parameters</td>
<td></td>
<td></td>
<td></td>
<td>data included in presentation</td>
</tr>
<tr>
<td>Arrange meeting with team</td>
<td>24th February</td>
<td>15th April</td>
<td>15th April</td>
<td>delayed due to consultant sick leave, set up in April</td>
</tr>
<tr>
<td>Review concept with consultant</td>
<td>20 - 25th January</td>
<td>24th February</td>
<td>15th April</td>
<td>to be done at meeting</td>
</tr>
<tr>
<td>Sign off on assessment format by IDT</td>
<td>31st January</td>
<td>15th April</td>
<td>15th April</td>
<td>to be done at meeting</td>
</tr>
<tr>
<td>Sign off on new assessment document</td>
<td>31st January</td>
<td>15th April</td>
<td>15th April</td>
<td>to be done at meeting</td>
</tr>
<tr>
<td>Agree weekly schedule with IDT</td>
<td>31st January</td>
<td>21st April</td>
<td></td>
<td>to be done at meeting - staff rotation</td>
</tr>
<tr>
<td>Collate data on next two months of Friday clinic to show demand on the service for reviews and assessments</td>
<td>2nd February</td>
<td>24th February</td>
<td>15th April</td>
<td>assessments fully booked for one month</td>
</tr>
<tr>
<td>Agree date to implement proposal</td>
<td>31st January</td>
<td>15th April</td>
<td>15th April</td>
<td>go live on 25th April</td>
</tr>
<tr>
<td>Run new format</td>
<td>28th February</td>
<td>25th April</td>
<td></td>
<td>intended for one month but changed to 2 weeks due to delays</td>
</tr>
<tr>
<td>Write literature review</td>
<td>6th April</td>
<td>13th April</td>
<td></td>
<td>draft 1 done</td>
</tr>
<tr>
<td>Design staff questionnaire to evaluate to what extent they felt part of the redesign and how they feel it worked</td>
<td>23rd March</td>
<td>22nd March</td>
<td></td>
<td>done</td>
</tr>
<tr>
<td>Design questionnaire on staff opinion on clinic effectiveness before and after implementation</td>
<td>23rd March</td>
<td>22nd March</td>
<td></td>
<td>done</td>
</tr>
<tr>
<td>Prepare clinic room</td>
<td>22nd April</td>
<td>24th April</td>
<td></td>
<td>hand outs, stacking trays, plinth, assessment forms, clip boards, confirmation e-mail</td>
</tr>
<tr>
<td>Review clinic lists</td>
<td>22nd April</td>
<td>16th April</td>
<td></td>
<td>allocate prosthetists to assessment clinic, review clinic and upper limb clinic</td>
</tr>
<tr>
<td>Distribute questionnaire</td>
<td>22nd April</td>
<td>18th April</td>
<td></td>
<td>both questionnaires to be handed out</td>
</tr>
<tr>
<td>Write up introduction</td>
<td>30th April</td>
<td>20th April</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Start Date</td>
<td>End Date</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>--------------</td>
<td>-----------</td>
<td>--------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>write up methodology</td>
<td>27th April</td>
<td>20th April</td>
<td>mainstreaming to short as only two clinics post change</td>
<td></td>
</tr>
<tr>
<td>prepare appendices</td>
<td>30th April</td>
<td>13th May</td>
<td>type up for inclusion, situational analysis including goffee and jones, questionaires, presentation, idt assessment form,</td>
<td></td>
</tr>
<tr>
<td>write up relfective diary</td>
<td>30th April</td>
<td>13th May</td>
<td>5 x 200 word reflection plus 1200word main reflection using gibbs cycle</td>
<td></td>
</tr>
<tr>
<td>write up evaluation</td>
<td>5th May</td>
<td>14th May</td>
<td>date delayed due to consultant being off</td>
<td></td>
</tr>
<tr>
<td>write up discussion</td>
<td>11th May</td>
<td>14th May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>write up draft 1 of thesis</td>
<td>18th April</td>
<td>14th May</td>
<td></td>
<td></td>
</tr>
<tr>
<td>prepare poster</td>
<td>20th April</td>
<td>14th May</td>
<td>redrafted after class presetation to add in evaluation data</td>
<td></td>
</tr>
<tr>
<td>check over final document and submit</td>
<td>14th May</td>
<td>14th May</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>