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C.H.A.N.G.E ?

Clinicians' Health Actions Naturally Generate Effectiveness?:
The development of a model for a clinically integrated system
for patient care management.

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Abstract

In 1997, Auckland Healthcare established the A+ Network Centre for Best Patient Outcomes. The development of this Centre was an initiative designed to support clinicians in their mission to achieve excellence of care for patients. This goal has led to a fundamental rethinking of how we currently manage patient care. The Centre's inability to find a system that could meet the needs of both patients and clinicians in improving patient outcomes has led to the development of our own generic clinically integrated system (CIS) model.

The CIS model links three specialised ideologies that have previously been used in health care but in isolation from one another. The concepts of evidence based practice, clinical redesign, and patient outcomes are brought together to form a single interdisciplinary framework for managing patient care. An integral part of this model is the use of a participatory action research approach to achieve this aim.

This thesis begins with a description of the theoretical underpinnings that have influenced the developmental strategy for establishing a generic CIS model. The discussion focuses on the development of the Centre, the contribution that literature has made to the development of a CIS model, and how the Centre members have used these findings to design a generic CIS model.

Later in the thesis there is a discussion of the development of a CIS model within an Orthopaedic Service, which provides the opportunity to illustrate, via the use of a case study, the practical applicability of this model. While this thesis primarily focuses on the case study, which entails the development of the CIS model for patients with a fractured ankle, the implications of this project have wider ramifications.

Our prior participatory experiences with the development of the CIS model for patients with a fractured neck of femur would impact on some of the decisions

made in this case study. In particular, the evaluation findings from the implementation phase of the fractured neck of femur project highlighted the need for a more sophisticated information infrastructure to support the intentions of a CIS model. The intended outcome of the establishment of a CIS model for patients with fractured ankles consequently expanded to incorporate a CIS model for patients with fractured neck of femurs using a generic computerised CIS model template to achieve these aims.

The development of a computerised generic CIS model has the potential to revolutionise the way in which we care for patients. The capacity to concurrently track and manage patient outcomes has moved from evaluating the effectiveness of care from an individual patient's perspective to incorporating groups of patients.

Central to this process is the establishment of conditions that will enhance the participatory input from all interested parties. In particular, this has meant introducing new avenues for patient participation. However, before this goal could be achieved, our first priority as clinicians was to accept the need for change and introduce the concepts of evidence based practice, clinical redesign and patient outcomes via a process which can embed these principles into our daily practice.

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INTRODUCTION

It is a rule without any exception that no patient ought ever
to stay a day longer in hospital than is absolutely essential
for medical or surgical treatment.
(Florence Nightingale, 1863)¹

SETTING THE SCENE

Florence Nightingale's statement continues to be a pertinent one as health care management moves into a new millennium. The question of when to discharge patients from hospital has developed a high profile for health services in the 1990s. As health professionals investigate alternative methods which will increase the effectiveness of patient care management, there is a growing awareness that the emphasis given to the delivery of traditional health care within the confines of a hospital environment is no longer appropriate.

In 1996, I was fortunate to receive a personal and professional opportunity to develop a new way of managing patient care. This followed the decision by the senior management team at Auckland Healthcare to establish a department dedicated to assisting clinicians² in their desire to improve patient management. The creation of the department, which has become known as the A+ Network Centre for Best Patient Outcomes,³ signalled a strong commitment to find new and innovative ways of improving patient care.

My acceptance of the position of co-ordinator for this Centre has meant leaving a nursing career to become an internal change agent for Auckland Healthcare. This new career direction has subsequently led me to fundamentally rethink

¹ The quotes used in the introduction of each of these chapters in this thesis have been collected over number of years and come from array of sources, including friends, books, and cards, and therefore, no formal references are given for them.

² The term clinician is defined by the A+ Network Centre for Best Patient Outcomes as any person who is involved in delivering and /or managing care within a hospital and/or community setting.

³ In the interests of brevity, the A+ Network Centre for Best Patient Outcomes will be referred as the Centre in this thesis.

what constitute the key elements of care that contribute to achieving effective outcomes for patients.

One of the difficulties encountered since the establishment of the Centre has been a general reluctance by clinicians to accept the need to change our current practices of patient care management. In some instances, this philosophy has become so deeply embedded into our daily clinical practice that any attempt to question or propose changes to the ways in which we work are often perceived as threats to our professional integrity. The original title of this thesis, C.H.A.N.G.E?, which stands for Clinicians' Health Actions Naturally Generate Effectiveness?, is an acronym that has been designed, and is used, to challenge the belief that, as clinicians, our health actions naturally benefit patients.

PURPOSE OF THE THESIS

This thesis postulates that a gap in our health care performance is revealed when we ask ourselves four core questions associated with the management of patient care:

- 1) What is the source of the evidence that guides our care?
- 2) Where are the documented rationales for the decisions and actions associated with the delivery of our care?
- 3) What are the short and long term effects of our care?
- 4) What methods do we use when working together as clinicians to show that effective patient care is being provided?

This thesis argues that when the answers to these questions are sought, the need for a new model of patient care management emerges. Any new model must clearly articulate the interrelationship between the evidence we use to guide our care, examine the reasons for this care, the way in which we manage care, and demonstrate the short and long term effectiveness of our interventions.

As the members of the Centre have sought to find the answers to these questions, an alternative model of managing patient care has emerged. Initially promoted as a theoretical concept, this model has developed into what is now

known as a Clinically Integrated System (CIS) model and is currently being piloted in a number of diverse clinical environments.

A CIS model seeks to promote an interdisciplinary approach to patient care, by linking three specialised concepts of patient management namely; evidence based practice, clinical redesign, and outcome management, into a single framework for managing patient care. It uses the strategies associated with participatory action research as the developmental process to achieve this goal.

The implementation of a CIS model in a given context is dependent on establishing and sustaining collaborative partnerships by working with clinicians, patients and their families to improve the effectiveness of health care management. It is the collaborative nature of these partnerships that contributes to the continual enhancement of a CIS model as we learn from and share experiences and ideas with each other.

AIMS OF THE THESIS

McGuinness and Wadsworth (1991) use the term 'permanent draft' to highlight the ongoing nature of a participatory action research project. The same term can be applied to this thesis, as its unusual methodology means that this project is an ongoing one. There are two facets to this thesis. The first focuses on the Centre's goal of developing a generic CIS model that is applicable to all types of patient diagnosis and can be used in any clinical environment. As the process of developing and implementing specific models progresses, the general model itself is subject to ongoing review. The second facet is to present an illustration of the process of developing a CIS model for a particular group of patients, namely those with a fractured ankle admitted to the Orthopaedic Service at Auckland Hospital.

For both facets the focus is on describing the research process that generates a model, and the model itself as it is at the time of writing. It is not a 'finished product'. Therefore, the specific aims of the thesis are to:

- 1) Describe the background to the establishment and purpose of the Centre.
- 2) Describe the evolution of the CIS model to its current pilot status as a computerised system being utilised within a specific clinical environment.

- 3) Discuss the processes involved in developing the CIS model for patients with a fractured ankle.
- 4) Discuss the implications of developing a generic CIS model, in relation to the experience of the orthopaedic service of developing a CIS model for patients with a fractured ankle.

Although these aims reflect the initial intentions of the thesis, as this research process is an evolving one, other factors have subsequently led to a broadening of the scope of the research project. Most notably, the unexpected influence of a recently developed CIS model for patients with a fractured neck of femur widened the group discussion and reshaped the outcome.

At the time of the commencement of the fractured ankle project, the fractured neck of femur CIS model for the Orthopaedic Service had been implemented and was in its evaluation phase. The release of evaluation results from this project coincided with preliminary discussions by the participants in the fractured ankle project on the possibility of moving to a computerised format in preference to continuing to use a pen and paper as a method for documenting patient care. At this time a decision was made to link the two projects together. This has meant that both CIS models developed to date use the same generic computerised template to guide and document patient care and allows the adaptation of patient care management to each person's specific experience.

THE THESIS APPROACH

A participatory action research approach was used for this project because it reflects a model for collaboration in shared decision-making processes, and promotes the development of a learning environment. It is both the research approach used in this project and the developmental process for generating each specific CIS model.

A CIS model is multidimensional and complex, and the process of developing one is challenging. However, the development of each component can be facilitated when the activities associated with the participatory action research spiral - analysing, planning, implementing, and evaluation - are utilised.

Each CIS model contains a number of elements which themselves include very specialised knowledge and strategies. For example, evidence based practice contains a number of strategies to help guide both clinicians and patients in their decision-making. These include the use of protocols, guidelines, research, clinical review and clinical experience to support clinician actions and rationales when planning a particular management plan for groups of patients.

The process of clinical redesign uses evidence to guide the implementation of patient care. This includes the documentation of pre-defined care activities against a specified timeframe, which is commonly referred to as a critical or clinical pathway (McCloskey et al., 1994; Yandell, 1995; Laxade & Hale, 1995.) However, recent health care trends indicate the need to broaden the scope of the pathway to focus on identifying patient outcomes or variances from the anticipated plan of care. A CIS model seeks to widen this perspective even further by incorporating an ongoing review of the activities and roles of clinicians. In addition, examination of the needs of both patient and clinicians indicates there are aspects of care that need to be redesigned to ensure that appropriate resources are available to clinicians so that they can deliver the desired level of patient care.

With increasing attention being given to variances there is a need to identify, measure and manage adverse patient variances. To gain a clear understanding of the effectiveness of the care that has been implemented, the short and long term consequences must be examined. This process entails scrutinising variances not only from an individual patient's perspective but also from a group or population view.

While undertaking this thesis a collaborative relationship has been formed between the Centre and clinicians working in the Orthopaedic Service. The nature of this collaborative process has evolved during the research process as a generic and interdepartmental CIS model has been developed.

THE WRITER'S PERSPECTIVE

An invitation to colleagues who were involved in the fractured ankle project to be co-authors of this thesis, an extension of their co-researcher role in the development of the model, was declined. Consequently, this thesis is my own

interpretation of the overall research process, one which has been influenced by the literature and practical experiences gained in the roles of researcher, group participant, and co-ordinator for the Centre. However, this approach has not precluded input and comments from clinicians in the Orthopaedic Service and the Centre members as to the direction and content of the thesis.

TIMEFRAME FOR THE THESIS

The thesis discusses the key events associated with the process of generating the CIS model up to September 1999. That date marks the implementation phase of the two computerised CIS models for patients in the orthopaedic service: for patients with fractured ankles and patients with fractured neck of femurs.

OVERVIEW OF THE THESIS CHAPTERS

Chapter One begins with a brief explanation of the forces that are driving the impetus for change in the health sector. The background to and the subsequent establishment of the Centre are then discussed. Next, the findings of a literature search and review that focused on the historical development of the concepts of evidence based practice, clinical pathways and outcome management are outlined. The implications of this review for the development of our own CIS model are then examined. The chapter concludes by outlining the need for a second literature review to find an approach that would support the development of a CIS model in a clinical environment.

Chapter Two discusses the literature review findings on participatory action research. These findings include the definition, philosophy of and recommended ways to use participatory action research. However, the opportunity to guide a research project for patients with a fractured ankle meant that the literature recommendations for using a participatory action research approach were re-examined in the light of our own experiences. Consequently, the Centre members introduced three new role ideas: the role of stewardship, which is used to guide the research process; the role of custodianship, which is used to communicate and share the research process intentions; and the role of mentorship, which focuses on sharing skills and experiences.

To enhance the collaborative conditions for guiding this research project a balance between providing a sense of direction and avoiding a prescriptive approach was sought, with the Centre members drafting a research proposal for consideration by the Orthopaedic Service.

Chapter Three describes the response to our research proposal and its subsequent modification as new observations and suggestions were used to determine the direction of the research process. This discussion occurs on two levels. The first is concerned with the group process for establishing a collaborative approach and includes establishing ground rules for the group's behaviour, developing formal communication infrastructures, and sharing an understanding of the terminology that will be used throughout the research project.

The second level focuses on the challenges faced in trying to incorporate patients and relatives into this collaborative research project. The discussion then moves to outlining the methodological issues surrounding the collection of data.

Chapter Four discusses the process used to establish the CIS model for patients with a fractured ankle based on the findings of a 'clinical snapshot'. Coinciding with this process was the release of a report of the use of the CIS model for patients with a fractured neck of femur over a three-month period. The report concluded that the current pen and paper system was an inadequate one and unless a more sophisticated information infrastructure was introduced to support a CIS model intentions the concept would fail.

Consequently, these findings led to the decision to design a generic computerised CIS model that could be adapted to meet the specific needs of individual patient groups. The proposal to use computerisation as the tool to implement a CIS model raised a number of concerns and posed a difficulty for the Centre members when no suitable commercial computerised package could be found. Working through these issues meant that we needed to design our own computerised system and the CIS model for patients with a fractured ankle would become the prototype for future CIS models. As part of this process the opportunity for clinicians to be actively involved in the design of a computerised

CIS model widened with the decision to concurrently introduce an educational programme on using a CIS model while it was still being designed.

Chapter Five evaluates the effectiveness of this change process using McTaggart's (1998) framework, which stipulates five criteria that must be met to ensure that effective change has occurred.

This chapter also discusses the personal impact of this change process utilising Brookfield's (1993) themes of impostorship, cultural suicide, lost innocence, road running and community to describe this experience.

Chapter Six, the concluding chapter, discusses an overview of this process, including the limitations and benefits of the project, the implications of using this study as a thesis project and the future intentions of the Centre members with regard to using a CIS model to improve patient outcomes.

Chapter One

BACKGROUND TO THE THESIS

There is nothing more difficult to carry out, nor more doubtful of success,
nor more dangerous to handle than to initiate a new order of things.

(Nicolo Machiavelli)

INTRODUCTION

This chapter recounts the decision by Auckland Healthcare to establish the A+ Network Centre for Best Patient Outcomes to assist clinicians to improve patient outcomes, and the subsequent development of a CIS model. This is presented from my perspective as co-ordinator for the Centre.

Initially we focused on critical pathways as a possible mechanism for improving patient care and then made a decision, following a major literature review, to include the second generation of critical pathways; care maps, with it's focus on patient variances. The literature on evidence based practice and patient outcome movements also indicated a new direction for managing patient care. Consequently, Centre members recommended a clinically integrated system for patient care that combines the use of these three concepts together.

A NEW DIRECTION IN PATIENT CARE MANAGEMENT

A new paradigm for health care is emerging, one which not only challenges traditional concepts of patient care management, but also questions the roles and autonomy of those who deliver this care. For example, Laxade and Hale (1995) state that, during the past two decades the nursing profession has undergone two major revolutions. The first occurred in the 1970s with the introduction of the nursing process, and this was followed by the development

of primary nursing in the 1980s. They believe that, as the nursing profession moves towards the 21st century, a third revolution is occurring. However, unlike the previous revolutions this one is not exclusively nursing focused. The new revolution encompasses any clinician who is involved in designing or managing patient health care services.

The common denominator for these professions centres on managing patient outcomes more effectively (Wood, Bailey & Tilkemeier, 1992; McCaughan & Picone, 1994; Porter, Van Cleave, Milobowski, Conlon & Mambourg, 1996). This feature marks a new era in care delivery, one which emphasises the need for all clinicians to work together to achieve an integrated approach to patient care management. The need to develop integrated approaches has been driven by consumer and clinician demands to show the effectiveness of care, by medical competition, and by a need to control rising health costs (Ellwood, 1988; Wood et al., 1992; Capuano, 1995; Epstein & Sherwood, 1996).

Epstein and Sherwood (1996) suggest that, as a result of these demands, a link between management outcomes and disease management have been forged, with the recognition that the concept of disease management is reliant on three theories. The first theory suggests that medical practices vary, so we need to define 'best practices' or 'optimal care'. Secondly, variation in care management is partly dependent on the patient's condition, which means, a variety of care interventions are necessary. The third premise is that it is possible to develop integrated systems of care management that will help to improve patient outcomes. The growing acceptance of these theories by clinicians has shifted the focus from managing disease processes within the confines of local settings to adopting a globalised systematic perspective from which to evaluate the effectiveness of patient care.

Epstein and Sherwood contend that, as a consequence of these theories, three separate consumer interest groups have emerged. These are clinicians, whose interests centre on clinical and humanistic outcomes; health administrators whose primary focus is on economic outcomes; and patients, who are concerned with humanistic outcomes. Unfortunately, the separation of these groups on the basis of their perceived interests has resulted in a disconnected and fragmented approach to care delivery (Moore, Smith, Schumacher &

Papke, 1996). This artificial division has meant that each group has had to compete against the others for limited health resources and there have been differing priorities as to what patients should receive treatment. These tensions have led to a recognition that rather than working as separate entities, these groups must begin to work together to achieve common goals (Wood et al., 1992; Hampton, 1993; Woodyard & Sheetz, 1993; Doerge & Hagenow, 1996).

The impact of change within the clinical environment

To enable this process to occur changes in the current health sector are necessary. Unfortunately, this imperative has resulted in the development of a change management dichotomy within the sector, as the desire for changes are often not cohesive with clinical reality. Hunt (1996) claims that a 'religious fervour' has developed, with some health care organisations demanding change in the mistaken belief that this alone will automatically generate effective patient care management. At the other end of this spectrum are the traditions inherent in clinical practice. As Cox-Dzurec (1998) points out, in spite of the numerous attempts to change clinical practice, it still remains steeped in tradition. She argues that this is due to the fact that the effectiveness of patient care is reinforced every time a positive outcome is seen to support traditional assumptions of care management.

At the core of patient management is the need to keep the patient 'safe'. Kozak (1998) argues that health care management claims to be based on rational decision-making processes, and this is reinforced by health educational systems that historically reward the retention of knowledge as opposed to challenging the basis of this knowledge.

Easen & Wilcockson (1996) take issue with clinician's claims that they use rational decision making processes to guide care. They believe this process is predominately subjective, underpinned by emotional and cognitive thinking. This thinking is an intuitive process that becomes even stronger with experience, as pattern recognition from previous experiences guides the instinctive decision making process.

The predominant ideology, and active promotion of the idea, that health care is based on clinicians' use of rational decision-making practices has meant there are limited avenues for patients and families to challenge these beliefs.

Consequently, the mass media has become the most popular medium for airing frustrations of patients or their families with clinicians decisions for treatment. These debates frequently centre on the differing perspectives between clinicians and patients on what has been meant by active participation in the treatment decision making process. The failure to explicitly describe and understand the differing views on what constitutes a participatory relationship between clinicians and patients results in individual and group disillusionment (Louis & Bartunek, 1992; Wilcox, 1996).

While the advocates of the third revolution in health care promote the need for clinicians and patients to set aside their differences and work together in a participatory manner, the question of how this process is to be successfully accomplished remains unanswered. These demands will remain rhetorical issues unless the traditional patterns of health care delivery can be dismantled to allow the introduction of new opportunities to improve patient care. While there is no one "quick fix" approach to these problems, one innovative strategy to make this vision a reality is being carried out at Auckland Healthcare (A+).

Background to the establishment of the Centre

Auckland Healthcare (A+) is New Zealand's largest health care provider, with the highest average patient case complexity in New Zealand (Profile Auckland Healthcare, 1996). As a tertiary acute provider, it supports six major facilities, which specialise in trauma, paediatrics, maternity, gynaecology, newborn services, cardiac and respiratory disorders and community and mental health services. Each of the six facilities has its own General Manager and a separate internal managerial structure.

In 1995, A+ began major organisational restructuring under the auspices of 'Redesign'. This was the preliminary work to the development of a politically acceptable proposal to build a new hospital site on which the six facilities would merge into a single organisation offering integrated acute and outpatient services. To demonstrate that such a large public investment was warranted it was necessary to provide evidence to show that the current structures and processes for patient care were effective and efficient. Assistance for this initiative was sought from an external-consulting agency, which worked with the A+ clinicians and hospital management for nine months to achieve this goal.

The consulting group's strategy centred predominantly on tracking patient admission patterns, and the associated administrative costs, within individual services across A+. These administrative processes were mapped out and validated by a variety of clinicians working in these areas. This process led to recommendations for some organisational restructuring with identified cost savings to improve the efficiency of patient care management. On the completion of the project the results were submitted to the Redesign Committee for review. This committee was comprised of senior management personnel and clinical representatives from each hospital.

The presentation of the consulting group findings raised some concerns. There was a perceived overemphasis on improving the efficiency of the organisation with seemingly little attention to the direct impact on patient care (Redesign Meeting 12th December 1996; Redesign Meeting 26th March 1997; Redesign Meeting 11th April 1997). In response to these concerns an interdisciplinary subcommittee of Redesign was established in June 1996. Doctor Robin Youngson,⁴ a consultant anaesthetist at Auckland Hospital and Medical Advisor to Redesign at A+, chaired this project.

In his document 'Clinical Systems Improvement, Treatment Guidelines and Clinical Process Redesign', Youngson (1997) describes how the committee thought that the introduction of critical pathways would refocus the emphasis on the patient as the centre of care management. Initially, the critical pathway was considered as a tool that could be used to organise patient care around a pre-specified timeframe. It was anticipated that, as clinicians worked together to determine the appropriateness of each clinical activity, a multidisciplinary approach to providing effective patient care would emerge.

However, the committee reached the conclusion that an even broader approach was required. Youngson (1997) states that, while struggling with the terminology surrounding clinical pathways, three separate issues arose:

- 1) Where does the evidence that guides the development of clinical pathways come from?
- 2) How is this evidence reflected in a clinical pathway?

3) What patient outcomes need to be continually measured?

There was concern at the lack of resources available to clinicians to support them in developing important new initiatives. The committee recommended the implementation of a longer-term organisation wide strategy to encourage continual clinician and patient involvement in processes for ensuring better patient outcome management. Acting on this advice, the General Manager for Planning and Development for A+ proposed the creation of a new Centre which would devote its attention to supporting and working with clinicians to develop clinical pathways and guidelines, with the aim of improving patient outcomes.

The establishment of the Centre

In June 1997, while employed as the Redesign team leader at Green Lane Hospital, I was asked to consider joining Robin Youngson in establishing this new Centre and accepted this position. We reviewed the committee's recommendations and identified the major goals as promoting the development of evidence-based practice, clinical pathways, and outcome measurement. However, it was clear that more explicit definitions and clarification of how these themes related to each other, were required before any long-term strategies could be developed. In particular, we were interested in reviewing the literature for information on processes used to introduce these concepts into clinical environments. While Robin focused on developing a business case for founding the Centre, I undertook an extensive literature search with the assistance of Sarah Tritt, a Philson Medical School Librarian.

THE LITERATURE SEARCH

We began the literature search by compiling a list of key words and combinations because of the wide diversity in the terminology used to define similar patient care concepts. The key words and combinations used were:

- critical pathways
- clinical pathways
- outcome measurement
- patient outcomes
- patient redesign

⁴ Any person identified by name and position in this thesis has kindly given their permission to do so.

re-engineering
 integrated delivery
 systems improvement
 evidence based practice
 clinical guidelines
 clinical systems improvement and
 care delivery systems

We chose to review the literature from 1985 onward, as that year marked the introduction of the concept of critical pathways in health care.

The results of this search were similar to the findings of the literature review conducted by the Wales National Health Services (1996) (cited in Campbell, Hotchkiss, Bradshaw, & Porteous, 1998)⁵. Campbell et al. (1998) found no randomised-controlled trials and noted a publication bias as the majority of articles reported only favourable experiences. They were concerned about the failure to discuss in detail, issues relating to staff time and resources required to develop, implement and update these systems of care management. In particular, they identified a lack of detailed discussion of the issues associated with introducing processes and evaluating patient management systems. This article supported our growing impression that the bulk of the available literature was anecdotal in nature.

However, the literature search made an invaluable contribution to our growing understanding of evidence based practice, clinical pathways and outcome management concepts. The following section summarises the evolution of these concepts and some of the criticisms surrounding their development. It concludes with a brief overview of how the Centre proposed to use these ideologies in the development of a CIS model.

THE LITERATURE FINDINGS

Pathways, plans and maps

The origin of critical pathways is open to interpretation. Reports of their use in the share market appear as early as 1928. Subsequently, they spread to other

⁵ This secondary citing has been used as the original report 'Value for Money Unit. Clinical pathways: A literature review,' Cardiff: Value for Money Unit, Wales National Health Service, could not be obtained.

industries, with applications ranging from the standardisation of industrial activities to the optimisation of organisational profits (McCaughan & Picone, 1994; Hofman, 1993; Newman, 1995).

The introduction of critical pathways into the health sector in 1985 is attributed to Karen Zander, a registered nurse working at the New England Medical Centre in the United States of America (Wood & al., 1992; Hampton, 1993; Woodyard & Sheetz, 1993; Hofman, 1993; Lumsdon & Hagland, 1993; Laxade & Hale, 1995). Zander and her colleagues designed the framework of a critical pathway around four core questions:

- 1) What work needs to be done to achieve the desired outcomes for patients with similar diagnoses?
- 2) What is the best way to produce these outcomes?
- 3) Who is accountable for the results?
- 4) How can care be restructured to ensure realistic outcomes are consistent?
(Lumsdon & Hagland, 1993)

The original intention of the critical pathway was to sequentially map out patient interventions and activities against a pre-determined timeline (Bower, 1992, Wood & al., 1992; Hampton, 1993; Gibb & Banfield, 1996). Central to this development was Zander's premise that the patient is the reason why health care exists, and the 'common denominator' for all clinicians and therefore, care delivery must be multidisciplinary and collaborative in nature (Zander, 1992a).

Following Zander's initiative, the development and use of critical pathways in other American hospitals occurred rapidly (Goode, 1995). However, there were differing views over the scope of a critical pathway (Lumsdon & Hagland, 1993), and a variety of definitions and alternative titles developed. For example, critical pathways are also called clinical pathways, interdisciplinary plans, anticipated recovery plans and action plans (Yandell, 1995; Beyca, 1996). Nevertheless, the basic concept and purpose of a critical pathway is the same in all clinical settings, namely the prescription of a defined multidisciplinary process of patient care activities against a predetermined timeframe (McCloskey et al., 1994; Yandell, 1995; Laxade & Hale, 1995).

The addition of a variance component to a critical pathway, in 1992, heralded the advent of the second-generation prototype of a critical pathway, called the

care map (Bower, 1994). The word 'map' is as an acronym for multidisciplinary action plan (Laxade & Hale, 1995).

Zander (1992a) argues that the inclusion of patient outcome statements in care maps removes the limitations of the traditional critical pathway. While critical pathways describe key interventions agreed upon by expert clinicians, Zander believes they remain primarily cost descriptors. The map concept with its focus on problem - outcome statements, aims to readdress what Zander sees as an imbalance between cost and quality patient outcomes.

Zander (1992c) describes the term quality as a product not a process. She states that: *there can be caring, there can even be satisfaction, but quality entails precision of interventions as measured by their results* (p.2). Zander insists that, unless the outcome component of care is defined, managed and evaluated at the individual patient - clinician level, there is essentially no current quality of care for the patient.

To help clarify the differences between a critical pathway and a care map approach, Zander (1992b) reshaped the emphasis of care delivery by asking:

- 1) What should the staff, patient and family be doing?
- 2) What is actually happening and is there a variance?
- 3) What is causing the variance?
- 4) What needs to be done with the variance?
- 5) How is this variance documented for the patient and continuous quality improvement data?

This format requires each profession to give up its traditional documentation processes, including stand alone nursing care plans (Beyca, 1996).

Consequently, the emphasis of care switches to a single multidisciplinary record that focuses on documenting the variances of care. In other words, documentation and the management of variances supersede the routinised description of care delivery.

To understand the importance of these variances two questions must be asked: What characterises a variance, and who defines it? Zander's (1992d) definition of a variance centres on a deviation from the care map. Ultimately, it is these variances that have the potential to alter length of stay, cost or patient

outcomes. Zander suggests it is possible to categorise all types of variances under the broad headings of patient, community, clinician, relative and system, but she advocates that individual health institutions should determine the type of variances of care which they perceive as important.

Once variances have been identified, Zander (1993) recommends carrying out concurrent and retrospective patient variance analysis. The concurrent analysis focuses on the individual patient's variances and addresses these as they happen. The retrospective analysis takes a broader perspective, looking for trends and patterns in patient variances. Zander believes that, if hospitals use these variances as key data, quality improvement will lead to the implementation of best practice for patient care.

However, while Zander's innovative approach to care delivery has demonstrated improved efficiency, reduced financial costs and improved outcomes of care for patients (Mahn, 1993; Meiches, 1994; Capuano, 1995; Goode, 1995; Kowal & Delaney, 1996; Ramos & Raliff, 1997), there are criticisms of this approach to patient care management in clinical settings.

Yandell (1995) reports that while over 200 critical pathways had been developed at Alliant Health Systems, by 1992 the majority of these had been disestablished. Reasons cited for this include feelings of ambivalence toward the concept, lack of physician support, rigid insistence that no modifications to the pathway were made, and the failure to replace existing hospital documentation.

Gibb and Banfield (1996) raise similar concerns, suggesting that the introduction of standardised critical pathways across hospital settings ignores the cultural distinctions between hospital settings. Their concern is that the underlying motivation for critical pathways is primarily to reduce financial cost. They see the intuitive clinical reasoning used by clinicians in their daily practice to be under threat with the introduction of standardised protocols for care delivery.

Gibson and Heartfield (1996) focus their criticisms on the impact critical pathways have on patients. They maintain that pathways are a way to control knowledge by reinforcing the power of key groups. Despite the representation of

the pathway as a collaborative practice, they believe that in reality it is an example of persuasion reinforcing the power of the clinician. The patient is excluded from developing collaborative relationships as they are reduced to an object commodity, which is defined in terms of a standard or deviation from the standard.

While the issues around the application of critical paths and care mapping dominated the health scene from 1985 to 1992, the scope of management for effective patient care widened in 1992 with the emergence of a new movement in health care, that of evidence based practice.

Evidence based practice

Until 1980 it was generally assumed that the outcome advances being made in medicine would be automatically integrated into practice following the publication of research results (Naylor, 1998). This idea was disputed by the British epidemiologist Archie Cochrane, who maintained that, while there are many inefficient uses of medical therapies, there is little use of effective ones (Hunter, 1995). To separate and identify the differences between the two, Cochrane proposed a systematic approach to confirming the effectiveness of patient treatments. In 1992, International Cochrane Collaboration Centres were established with the aim of preparing and systematically reviewing randomised controlled trials (Silagy, 1995). The overall purpose of this approach is to provide patients and clinicians with the best available evidence to aid decision making. Some clinicians believe that by making clear the risks and benefits of different treatment options patients will be empowered to make their own treatment decisions (Colyer & Kamath, 1999).

While evidence based medicine was the original focus, many clinicians have supported this approach leading to a greater emphasis on the need for multidisciplinary care. As the interest in evidence based practice has grown, new strategies for its use have developed. For example, clinical guidelines are a way of transferring evidence based material into daily clinical practice. Ritchie, Forrester & Jones (1997) describe the meaning of a guideline in the following terms:

The words guide and line were first joined to refer to a physical object, such as rope that marked the optimal course along a treacherous path. They can

be viewed as maps of common paths taken, derived from synthesis of past experiences, with annotations that list advantages and disadvantages of reasonable alternatives. (p.1130)

While the initiative of underpinning clinical practice with evidence appears simple, it has been deceptively difficult to implement. A number of factors contributing to these difficulties have been identified in the literature. For instance, there is an argument that evidence based practice based solely on the outcome of randomised controlled trials, the highest quality of quantitative research, is for "research connoisseurs" only (Saltman, 1998). Gerrish and Clayton (1998) report a growing recognition that such a narrow focus for acceptable evidence overlooks the fact that evidence for clinically effective care is also derived from patient experience, professional judgement and clinical expertise.

There is a prevailing perception that evidence based practice has been driven by medical staff, thereby excluding patients, managers, purchasers and policymakers from the process (Appleby, Walsh & Ham 1995; Saltman, 1998). McNicholl, Layton, & Morgan (1993) support this view, alluding to the power issues in the implementation of guidelines. According to these authors, in spite of the introduction of multidisciplinary teams, the medical paradigm continues to dominate and control the decision-making process. Consequently, one of the strongest criticisms of evidence based practice is that the introduction of guidelines results in the suppression of innovative practice and the freedom to make independent decisions. This has given rise to the term 'cookbook medicine' (Colyer & Kamath, 1999).

McNicholl, Layton and Morgan (1993) dispute these claims, arguing that guidelines protect patients because of the rigour of using a scientific research framework, allowing for the examination of the long-term outcomes for patients. Other authors insist that the introduction of guidelines into clinical settings is intended to guide the decision making process and not to negate individual accountability for the delivery of care to patients (Tingle, 1997; Saltman, 1998; Maisonneuve & Ojasoo, 1999).

Other concerns centre on the failure to examine how research is perceived, or rejected, by those using it, (Hunter, 1995; Naylor, 1998) and on a lack of attention to the diversity of patients' individual circumstances (Appleby et al., 1995; Saltman, 1998). While the potential benefits have wide implications for both clinician and patient, the professional literature is dominated by medicine. Despite a recent surge in evidence based nursing practice, other health clinicians are not well represented (Colyer & Kamath, 1999).

Recently, Onion and Walley (1998) have identified the emergence of two schools of thought as to how evidence based practice should be developed. The first lies within the more traditional setting of an academic environment and focuses on using randomised clinical trials. The second is in the clinical environment, where evidence based material incorporates both the opinions and experiences of clinicians and patients. These authors argue that there is a place for both approaches because they seek to achieve the same goal: improved patient outcomes. However, they warn that neither approach will be successful unless consideration is given to patients' preferences for treatment.

The fundamental question of whether or not evidence based practice is effective in clinical practice remains unclear because the approach still awaits an evaluation of its effectiveness (Colyer & Kamath, 1999). This problem is compounded because insufficient time has been spent on the application and implementation of guidelines in relevant clinical settings (Appleby et al., 1995; Duff, Kitson, Seers & Humphris, 1996; Saltman, 1998) and there has been a failure to develop mechanisms for measuring patient outcomes (Duff et al., 1996; Gerrish & Clayton, 1998).

Outcome management

Patient outcome management is not a new concept. In 1914, Ernest Codman formed his own hospital, naming it the End Result Hospital, to show his commitment to quality patient outcomes (Hammersmeister, 1995). His work influenced the American College of Surgeons to introduce hospital wide standardisation programmes (McIntyre, 1995). Unfortunately, according to McIntyre (1995), they ignored his two primary concerns, the analysis of outcomes and identification of avoidable errors. Consequently, patient outcomes have historically been evaluated across the health sector using five

simple generic 'd' indicators: death, disease, disability, discomfort and dissatisfaction (Sovie, 1994). Ellwood (1988) argues that the ability to have a common vision for health care management has been lost because of the inability to measure and understand the effectiveness of clinical interventions from the patient's viewpoint.

Davies (1998) believes that the increased desire for a wider perspective on what constitutes patient outcomes is being driven by contractual agreements, the growth of information technology, and increased accountability for care delivery. He states that initial attempts to meet these demands in the early 1990s emphasised the measurement of all patient variances as the key indicator of quality. This approach became too data intensive as attempts to track patient outcomes resulted in the collection of massive amounts of information that could not be accurately analysed (Brown & Nemeth, 1998a). This led to what Davies describes as "paralysis by analysis" (p. 359). The process did, however, result in the recognition that there will always be uncertainty about the relationship between clinician performance and patient health outcomes because of the complexity of heterogeneous populations. Consequently, the new vision for the future is to combine patient and clinician interests in identifying important outcome trends.

One model that has gained increasing attention in the literature is the Nelson and Wasson (1994) clinical value compass, which aims to combine clinician and patient interests in outcomes. The clinical value compass approach is based on four assumptions. The first is that the aim of health care is prevention, diagnosis or treatment to reduce or limit the burden of the disease by restoring or maintaining a healthy function. The second assumption is that human functioning is multifactorial, covering biological, physical, mental and social elements. The third assumption is that services, which provide clinical care processes, are the most likely to achieve the health outcome the patients desire. Finally, the value of health care is a function of its quality, costs and volume (Nelson, Mohr, Batalden, & Plume, 1996). These assumptions are graphically displayed as a clinical compass linking functional health status, patient satisfaction, clinical outcome and cost components together. Nelson et

al. (1996) promote this process as a method for measuring holistic patient outcomes as opposed to focusing on specific issues.

While the perspective and scope of outcome measurement has been widened to include topics such as absolute risks of care delivery and cost of care, Waters (1997) argues that the difficulty of measuring outcome is that they come at the end of care delivery. He believes clinicians still see outcome measurement as a process for ensuring standards, with blame being apportioned if these are not met.

Combie and Davies (1998) concur with Waters's views. For example, they note outcome measurement fails to detect and prevent near misses, whereas tracking and measuring a process highlights these. They argue that, as outcome measurement becomes the dominant feature of health care, there is a failure to recognise the advantages of process measurement. The power of process measurement lies in asking not only what was done, but also asking if the patient treatment was justified, acted upon and done well.

Bologna and Feldman (1995) also contend that outcome measurements do not change systems. They assert that, to ask what the measures are actually managing ensures the distinction between outcome measurement and outcome management evolves. If relevant patient trends are to be systematically reviewed and identified, the traditional approach of measuring the impact of care from an episodic, single discipline perspective, must be replaced with longitudinal interdisciplinary studies (Crawford, Taylor, Seipert & Lush, 1996).

The need for an integrated approach

While the literature advocates the need to develop and implement guidelines, in conjunction with the continual evaluation of clinical practice and outcomes, few articles specify how this can be successfully achieved (Beckham, 1993; Hunter, 1995; Kitchiner, Davidson & Bundred, 1996; Porter et al., 1996; Porter O'Grady, 1997; Waters, 1997). Furthermore, there are fundamental problems in defining clearly what is meant by an integrated approach. Lamb (1997) highlights this problem in attempting to define the meanings of the terms seamless, integrated and co-ordinated care, and concludes that they have been used superficially to emphasise the connection between tertiary, secondary and primary health care.

Lamb also points out that there is little empirical data showing that integrated systems have better outcomes than non-integrated ones.

Hunter (1995) believes that, far from them working together to achieve an integrated system, a political struggle has emerged between medical staff and a new breed of health researchers who come from a wide range of disciplinary backgrounds. While health researchers are shaping conceptually integrated models, clinicians are working within the boundaries of their own services, focusing on outcome measuring systems. This clash of values has led to what some authors claim is a 'tribalism' approach to integration systems development, with each group competing with the other (Conrad & Shortell, 1996; Walters, 1997; Beckham, 1993).

McQueen (1995) has attempted to distinguish between these varying interests by identifying the types of integration of health care. He proposes that there are three key forms: functional, physician and clinical integration. Functional integration is achieved when core support functions and systems are co-ordinated across operational units. Physician integration is determined by the degree of support and involvement medical staff have with the system. Clinical integration is achieved when all care services are co-ordinated across the functions, activities and operations of a system. McQueen suggests that the best way to achieve a truly integrated system is to use a patient focused care model. As the goal of this model is to centre activities around patient needs, the evolution of functional, physician and clinical integration will naturally occur in a systematic way.

Waters (1997) reaches a similar conclusion. In reviewing the moves to improve clinical effectiveness since 1989 he identifies the major initiatives as: care pathways, research and development strategies, patient focused care, disease management, resource management, reengineering and quality improvement. Waters believes that, while each of these initiatives has merit, they have gained limited clinician support because of an overemphasis on clinical auditing which ignores the multiprofessional implications of care delivery. His solution lies in a new approach that moves from auditing, with its implications of inspection and imposition, to one of persuasion and facilitation.

The key to this process is the care map, which Waters describes as the 'spine' of care management. Within this process there is continual tracking of variances, correlated with the development of guidelines and protocols. Waters maintains that clinical effectiveness is achieved because the process is multidisciplinary in nature and, therefore, owned by the team that is developing the process.

A growing body of opinion within the literature supports Waters' strategy for integration, which starts from a clinical basis and incorporates care maps, evidence based practice and outcome management (Bologna & Feldman, 1995; Campbell et al., 1998) into one framework.

In summary, this literature review gave us a deeper understanding and clarification of the original principles of critical pathways, evidence based practice and outcome management. Attempts to apply these concepts in the clinical environment highlight some of the concerns clinicians have about the suitability and relevance of these concepts to their practice.

The literature review confirmed our belief in the need to develop a systematic approach to patient care management which would incorporate evidence based practice, care mapping and outcome management. However, there was a lack of discussion in the literature as to what processes could be used to achieve this goal.

The following section summarises how the findings of the literature review were adapted to assist in the development of our own CIS model, and why a second literature search was undertaken.

THE DEVELOPMENT OF A CLINICALLY INTEGRATED SYSTEM FRAMEWORK

The interdependent nature of the relationship between evidence based practice, care mapping and outcome management became clearer when we began planning how to introduce these concepts of patient care into A+. Zander's (1992 b) explanation for advancing the concept of critical pathways to encompass the variances of patient care led us to adopt the concept of care mapping.

Accepting the arguments for the inclusion of clinical experience and opinion as a valid component of evidence based practice meant that we needed to widen our perspective on what constituted clinical evidence, rather than limiting our initial thinking to collecting only quantitative data.

Of particular value were the comments concerning the need for the selective management of outcome variances, which led to the decision to incorporate the Nelson and Watson compass (1994) into a CIS model as part of a management tool to guide the process of analysing patient variances.

Designing a clinically integrated system

One of the themes that came through in the literature was the degree of complexity and the skills required in developing the components of a clinically integrated system. For example, the need for personnel skilled in gathering and evaluating evidence based material influenced our decision to maintain the unique identity of each of the concepts in our own model. This has meant that these concepts have not been merged to form a single identity. Instead, their interdependence on each other has been highlighted.

We were concerned that if we attempted to introduce care mapping without including evidence based practice the result could be endangering patient care by delivering unsafe or unproven treatment. Conversely, if evidence based material was not integrated into the process of care mapping, it would remain as an appendix to care, rather than a guide. Finally, without a system for the identification of adverse patient outcomes, there would be no way of knowing if the evidence and delivery of treatment were of benefit to the patient.

While the literature has focused on the need for clinically integrated systems, in the haste to develop clinical pathways and evidence based practice the associated documentation related activities have largely been overlooked (Brown & Nemeth, 1998b). This omission is evident in the published designs that either omit the variance component or physically separate this function from the main activities of care (Cornwell, 1995; Marvin, 1995; Anders, Tomai, Clute & Olson, 1997; Guin & Nall, 1998). If patient outcomes are to improve, the accountability for both decisions and actions must occur at the point of service (Porter-O'Grady, 1997). Hence, as knowledge dependent organisations, health systems must be designed so that data flows directly to the clinicians'

immediate work environment. At the planning stage, the utilisation of computers to achieve this goal was not our priority. However, in the coming months it would become crucial if a CIS model was to survive.

While a computerised system was seen as one tool that could potentially support clinicians in their decision making process, a more fundamental issue arose when we asked what the roles and activities are that clinicians undertake in their daily practice, and if they are appropriate.

A clinical redesign concept

Historically, the roles and activities associated with clinical care have been primarily determined, and usually supervised, by medical staff. This has resulted in the division of the patient into bodily parts, with each clinician assuming particular responsibility for an area of the body. For example, the orthopaedic surgeon focuses on the surgery, the physiotherapist supervises mobilisation activities and the social worker works to resolve social problems. While these specialised skills all contribute to improving patient care, the ability to take a holistic view of the patient is hampered because clinicians often fail to see the possibilities for the interconnection of care management outside their own immediate roles (Conrad & Shortell, 1996).

The requirement that each group of clinicians demonstrate the professional and cost effectiveness of their interventions has led to the use of multiple documentation systems to record these processes, often resulting in the duplication of examinations and questions for patients and their families. While Zander's model promotes the vision of a multidisciplinary relationship between clinicians and patients, it fails to clearly articulate how roles and activities can be negotiated. For instance, what are the processes that have led to the decision to incorporate specified activities on a care map, and how is professional accountability for these activities determined?

Therefore, a decision was made to integrate the principles of care mapping and review clinicians' roles under the term 'Clinical Redesign' in order to demonstrate the interdependence between clinicians delivering patient care and those managing patient outcomes. One new initiative influencing the delivery of patient care is the move towards interdisciplinary as opposed to

multidisciplinary care. Carrier and Kendall (1995, cited by Barr, 1997)⁶, explain the distinction between the two philosophies:

Multidisciplinary work is a co-operative enterprise in which traditional forms and divisions of professional knowledge are retained... whereas interprofessional work implies a willingness to share and indeed give up exclusive claims to specialised knowledge and authority, if the needs of the client can be met more effectively by other professional groups. (p.1005)

This interdisciplinary perspective supports the principles of clinical redesign, and is consistent with our intention to examine the roles of clinicians in managing patient care. Strong and Yarde (1997) have observed that with increasing specialisation, tighter performance and job descriptions are often used to ensure that the delegated tasks of care are consistently performed. Consequently, any changes to these roles must consider the behavioural implications and individual responses to any proposed changes (Harvey, 1994).

The need for a learning environment

Lovett & Massanari (1999) suggest that the ability to drive change into current practice is dependent on creating a learning cycle whereby clinicians set aside their assumptions about current reality and be willing to explore alternative processes. They see this as the most challenging step in implementing a change process because, unless clinicians agree that there is a performance gap in current practice, change will not occur. Such agreement requires the creation of a safe environment, which acknowledges that mistakes do happen and allows clinicians to accept their own vulnerability.

A problem identified with a proposed CIS model was that while it linked together concepts of patient care management, it lacked a method to introduce and manage the change process. We identified the need to find a method of implementing change that would not be directive and would support the principles of creating a learning environment. During the completion of a nursing management paper for this Masters degree, participatory action research was alluded to in our discussions as a method for bringing different interests and

⁶ Secondary source cited as I was unable to obtain Carrier, J. M. & Kendall, I. (1995) Professionalism and interprofessionalism in health and community care: some theoretical issues. In: Owens, P. Carrier, J. Horder, J. eds. Interprofessional Issues in Community and Primary Health Care. Macmillan, London: 9-36

perspectives together to achieve a joint approach to initiating and driving a change process.

This approach appeared to offer a possible solution to our dilemma, so a second literature search on this topic was undertaken with the assistance of Sarah Tritt, the Philson Librarian. However, at the conclusion of this search, McTaggart's (1991) statement that: *any literature search using the descriptors participatory research, action research or participatory action research will still identify a confusing and meaningless diversity of approaches to research (p.169)*, was found to be true.

A diversity of approaches and a variety of philosophical interpretations of participatory action research are discussed in the literature. While this range results in a degree of uncertainty and confusion as to what direction to take, the variations provide an opportunity for researchers to interpret and apply the theoretical and practical implications of participatory action research to their specific context.

SUMMARY

In recognition of the need for a change in direction in which to manage patient care, Auckland Healthcare established the A+ Network Centre for Best Patient Outcomes to assist clinicians with their aim to improve patient outcomes.

Initially, the focus of attention was on critical pathways as a possible mechanism for achieving improved patient care. However, a literature search and review helped to broaden this scope by highlighting the need to include the second generation of critical pathways; patient care maps, with its emphasis on patient variances. The recent attention given in the literature to the evidence based practice and patient outcome movements also signalled a new direction for managing patient care. Consequently, these findings led us to suggest combining these three concepts of care into a single model for patient care management. However, a process that would enable this theoretical concept to become a clinical reality meant that a second literature search and review was necessary.

The following chapter discusses the literature search findings in relation to participatory action research, describes the formal establishment of the Centre,

and concludes with a description of the adaptation of some of the principles of participatory action research as we began to develop a CIS model for patients with a fractured ankle.

IN SEARCH OF A RESEARCH PROCESS

We don't have much money to do this so we're going to have to THINK.
(Ernest Rutherford)

INTRODUCTION

This chapter describes the events preceding the agreement between the Orthopaedic Service and the Centre to develop a second CIS model, and the decision to use this project as a case study for my thesis. I begin by describing participatory action research and the decision to incorporate this approach into a CIS model. This decision marked the beginning of the formal establishment of the Centre, and the Centre's goals and membership are then discussed briefly.

Before undertaking the fractured ankle project the Centre's members re-examined some of the tenets of participatory action research, particularly the assumptions about empowering or emancipating participants, and ownership rights to a research process. It is argued that within our own context these claims are inappropriate, and an alternative perspective is offered. This perspective focuses on the roles that participants play during a research process, and promotes the ideas of stewardship, custodianship and mentoring.

While the CIS model provides a structural framework for improving patient care, the Centre's members have identified the need for a generic research process template to help guide the overall development and implementation of a CIS model. This generic process recommends that the participants consider the use of a pluralistic research methodology, (commonly known as a triangulation research methodology), to provide an in-depth understanding of the current pattern of patient care management and its effects on both patients and clinicians.

As part of this process, the importance of continually evaluating a research strategy and having a joint understanding of the language used in the development of a CIS model are identified as crucial factors in its successful implementation.

PARTICIPATORY ACTION RESEARCH

The action research spiral

A positivist model of science has traditionally dominated the physical, biological and social sciences (Susman & Evered, 1978; McKibbin & Castle, 1996). Within this paradigm a structured approach to solving problems permeates the research process. The sequence of events includes specifying a hypothesis, reviewing the literature, identifying a target population, using a structured data collection tool, and analysing data with the intention of proving or disproving the initial hypothesis (Perkins & Wandersman, 1990).

A challenge to this positive approach is credited to Kurt Lewin (Susman & Evered, 1978; Holter & Schwartz-Barcott, 1993; Hendry, 1996), who proposed a new paradigm, which was called action research in the 1940s. Central to this new paradigm was the development of a spiral framework for solving problems (Susman & Evered, 1978; Meyer, 1993; McTaggart, 1994). This spiral links the concepts of analysis, planning, action and evaluation. While each concept represents a specific research stage in a study, they are linked by processes of continual reflection and action that occur throughout a research process (French & Bell, 1990). The phases of reflecting and acting are recurrent and changes to the research process can take place at any stage, with newly acquired knowledge providing the impetus for new directions (McTaggart, 1994).

Lewin's idea highlighted a move away from positivism towards an analytical and interpretative paradigm (McTaggart, 1994; Meyer, 1994). The new paradigm also challenged conventional thinking about the researchers' role as independent neutral observers carrying out the research by themselves and seeking to explain the cause and effect of research interventions.

Fundamentally, this has meant developing new ways of thinking and interaction between researchers and those wishing to carry out research (the participants or co-researchers)⁷ as they work together to solve practical problems.

⁷ In this thesis clinicians who have been involved in the development of the CIS model will be referred to as participants

While Lewin is acknowledged as the pioneer of the action research spiral, similar action research methods were simultaneously being developed at the Tavistock Institute of Human Relations in the United Kingdom (Susman & Evered, 1978; Holter & Schwartz-Barcott, 1993). Action research has become an accepted research paradigm across a variety of disciplines and countries and these parallel developments may help to explain the diversification and variety of ways in which it has been interpreted (French & Bell, 1990; Holter & Schwartz-Barcott, 1993; McTaggart, 1994; Guerrero, 1995; Nolan & Grant, 1993; Hart, 1996; Schurman, 1996).

Greenwood and Whyte (1993) take issue with researchers who attempt to make clear and absolute distinctions between the varieties of action research, as each version has multiple overlapping dimensions. Argyris and Schon (1989) use the term "research family" (p. 614) as a way of linking the various philosophical stances, believing that, in spite of the differing applications, the commonalities of action research outweigh the differences. By focusing on these similarities, Holter and Schwartz-Barcott (1993) have identified four fundamental principles of action research: collaboration between the researcher and participants; seeking solutions to practical problems; changing current practice; and developing a theory of practice.

Wadsworth (1998) takes a more controversial stance, arguing that these principles are not what makes action research unique because all research has elements of action and a degree of critical inquiry. These elements are reflected as acting, reflecting, raising questions, planning and conducting a study, analysing results and planning new ways of action. Hence, a 'participatory' view of action research has emerged that attempts to distinguish itself from other forms of action research by focusing on how the working relationship is formed and managed between researchers and participants (Nyden & Wiewel, 1992; McTaggart, 1998; Wadsworth, 1998).

Within the paradigm of participatory action research, a variety of definitions are used to describe this relationship. For example, Schurman and Israel (1995, as cited in Schurman, 1996⁸) define participatory action research as a:

Methodology in which researchers and members of a social system collaborate in a process of data-guiding problem solving for the dual purpose of a) improving the system's ability to provide members with desired outcomes and b) contributing to general scientific knowledge.
(p.374)

In contrast, McTaggart (1998) defines participatory action research as:

1) *Participation*: authentic commitment to the studied enhancement of a social practice by its practitioners, that is participation in the action and the research,

2) *Action*: wisely planned, deliberately implemented and carefully studied research and participation in changes of practice,

3) *Research*: carefully observed and theoretically informed participation and action (p.1).

These differences in the interpretation of participatory action research are reflected in the ways which it is used in practice. For example, Holter and Schwartz-Barcott (1993) regard the philosophical beliefs of the researcher as crucial, because the researcher is in charge of the process. They recommend the use of one of three approaches. The first is a technical collaborative approach, whereby a predetermined intervention based on a pre-specified theoretical framework is used and then evaluated to see if it has relevance to the practical setting. Within this setting, the relationship between the researcher and participants is of a technical and facilitating nature. The researcher's aim is to gain participants' interests and agreement to the research, and to facilitate the implementation of a specific intervention. The second approach is one of mutual collaboration, with the researcher and participants working together to identify potential problems, their causes and solutions. The third approach is

⁸ This secondary source has been cited because Schurman S.J. & Israel, B. A. (1995): Redesigning work systems to reduce stress: A participatory action research approach to organisational changes. Keiter, G. Hurrell, J. & Murphy, L. (eds): *Job Stress Interventions: Current practices and new directions*. Washington, D.C.: American Psychological Association, could not be obtained.

described as an enhancement approach. This approach, while identifying problems in a specific setting, seeks to uncover the personal and cultural norms that govern practice. Once these patterns have been revealed, it is argued, new patterns of practice will emerge out of new collective understandings of the values and assumptions that have underpinned previous practice.

Hart and Bond (1996) propose a framework to guide the researcher's intention, but are critical of Holter and Schwartz-Barcott's interpretation, which they see as too static and rational, for a process which is dynamic and non-rational. As an alternative framework, the authors propose the research process should be: educative; problem focused; and entail improvement, and involvement. Within these criteria four types of action research are proposed: experimental; organisational; professional; and empowering. Hart and Bond acknowledge that, while their framework reflects the ideal, the criteria and types are not necessarily distinct identities. They advocate using a specific approach to facilitate understanding the overall direction of the project. Otherwise, in their view, inappropriate usages will lead to further confusion about the methodological issues surrounding action research.

Origins of participatory action research

The attempt to trace the origins of participatory action research in order to gain an insight into the original intentions for this approach revealed a variety of possible sources. For example, Dr Moreno is credited as the first person to have promoted the use of co-researchers and active participation in research, while working with prostitutes in Vienna in 1913 (McTaggart, 1994). However, French and Bell (1990) give credit to John Collier, the British High Commissioner for India, who in 1933 emphasised a joint approach to resolutions of ethnic tensions. Others believe that participatory action research emerged in the Third World countries after traditional Western research approaches failed to gain expected social and economic changes (Brown & Tandon, 1983). Rolf (1996) maintains that a participatory action research was popularised as a new paradigm by psychologists in the early 1980s and subsequently adopted by educationalists, who modified it into a model of practitioner-based enquiry.

Greenwood & Whyte (1993) take a more pragmatic view in claiming that the addition of the title 'participatory' to 'action research' originated in the United States of America. Action Researchers in that country expanded the title in an attempt to dissociate themselves from the large number of published articles which claimed that an action research framework had been used to solve problems but in their view failed to do so in a truly participatory manner

It is the theme of working with participants, as opposed to working for participants or carrying out research on participants, that emerges as the central tenet of participatory action research (Israel, Schurman, & Hugentobler, 1992; Wadsworth, 1993; Lindsey, Shields, & Stajduhar, 1999). Both participant and researcher are actively involved in the conceptualisation, design, implementation and interpretation of the research process (Hall, 1981; Chesler, 1991; Holter & Schwartz- Barcott, 1993; McTaggart, 1994; Guerrero, 1995; Nicholas, 1995; Hagey, 1997).

McTaggart (1994) argues that this act of participation is reflected in the commitment of all participants to: improve their individual work; collaborate with others by helping them to improve their work; and collaborate with colleagues in their own separate organisations with the aim of promoting a project and sustaining it. These actions combine to simultaneously change the researcher, the participants and the organisational culture.

During this process several other distinguishing characteristics of participatory action research also appear. The first is an emphasis on co-learning (Santos, 1989; Chesler, 1991; Greenwood & Whyte, 1993; Meyer, 1993; McTaggart, 1994; Rogers & Palmers-Erbs, 1994; Deshler & Ewert, 1995; Hendry, 1996; Guerrero, 1995; McKibbin & Castle, 1996; Schurman, 1996). This is an eclectic and diverse process (Chesler, 1991; Greenwood & Whyte, 1993; Deshler & Ewert, 1995), as no one party can predict or control the outcome because the research process itself is emergent (Sheehan, 1990; Greenwood & Whyte, 1993; Hendry, 1996; McKibbin & Castle, 1996; Waterman, Webb & Williams, 1995; Soltis-Janett, 1997).

Researchers working in a variety of occupational settings have highlighted the benefits of using a participatory action research approach. These include the provision of a mechanism whereby the gap between theory and practice is narrowed, (Susman & Evered, 1978; Holter & Schwartz- Barcott, 1993; Hart, 1996; Wadsworth, 1998), bridging the gap between the researcher and those working in the area (Hall, 1981; Brown, 1983; Rogers & Palmers- Erbs, 1994; Hart, 1996), and the fact that it is a non exploitative process (Nichols 1993; Roger & Palmers–Erbs, 1994; Hart, 1996).

However, Waterman et al. (1995) warn that, while there are good articles available on participatory action research, a true understanding of the principles cannot be gained prior to an individual attempting to undertake the process.

The role of the researcher

One area of contention in participatory action research is the question of whether the researcher should come from within or outside the project setting. Louis and Bartunek (1992) refer to the researcher as either an insider or an outsider. An insider will normally have a role as an organisational member when they are not involved in the project. They are less likely to have training in research methods and will be more concerned with the implications that the research will have for their environment. In contrast, an outsider will not have a role within the organisation on the completion of the project. They are more likely to have a formal research training background, and are more detached from the project environment, and more interested in generalising the results of the project.

Hagey (1997) argues that the idea of an outside researcher working within an organisation to achieve their needs is a somewhat 'romantic' concept, whereas, the reality is that outside researchers are frequently criticised for not proactively promoting research within the local context. Bartunek, Lacey & Wood (1992) hold similar views, believing that outsider researchers typically attempt to introduce change based on their own schemata and are overly optimistic about the likelihood of success.

A basic assumption of participatory action research is that the members of the group are not passive participants, and that the impetus for changing the current situation can come only from the group (Hyrkas, 1997). Merrifield (1997) states that, in the purist form of participatory action research, the community initiates the research project and researchers are invited in. However, researchers who are committed to the principles of participatory action research can also approach communities to work with them. In Merrifield's view, as this is a collaborative process, who conducts the actual mechanics of the research is irrelevant.

APPLICATION OF PARTICIPATORY ACTION RESEARCH TO THE CLINICALLY INTEGRATED SYSTEM MODEL

Following these initial readings a participatory action research approach was seen as complementing the intentions of a CIS model. In particular, its emphasis on working with groups, narrowing the gap between practice and theory and creating a learning environment influenced this decision. Some of the principles behind participatory action research would be adapted in the light of our own experiences and this will be discussed later in the chapter.

We sought to illustrate how the CIS model and participatory action research were connected by introducing a simple diagram with connecting arrows linking the ideologies of evidence based practice, clinical redesign and patient outcomes together, with this process being underpinned by the ideology of participatory action research. This design would change when a deeper understanding of using a CIS model in a clinical environment was gained. This change will be discussed in Chapter Five.

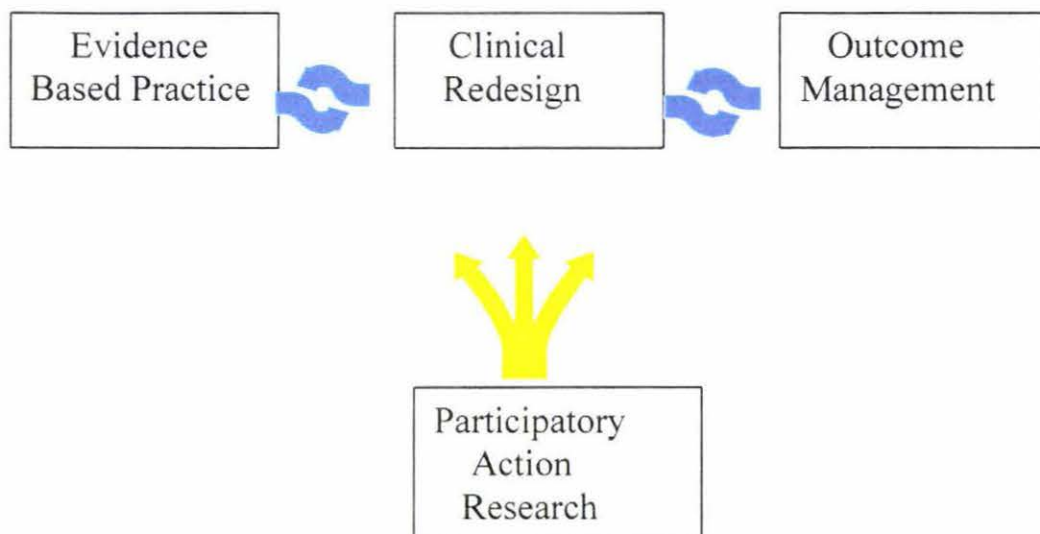


Diagram One: Components of a Clinically Integrated System model

Having clarified the components of a CIS model, we concentrated on finding a title that would reflect our purpose. Following consultation with a number of clinicians within A+, the name 'A+ Network Centre for Best Patient Outcomes' was chosen. A+ represents Auckland Healthcare. The word Network signified the need to build internal and external communication channels to encourage the sharing of the skills and knowledge of clinicians across A+. The term Best Patient Outcomes highlights the ultimate purpose of the Centre. This purpose is reflected in the Centre's founding values, which are:

Patient-Focus

By promoting the integration of clinical guidelines, clinical redesign and outcome management throughout Auckland Healthcare.

Networking

By creating good internal communication networks, widely disseminating knowledge and skills, and enhancing network connections with external partners in the community.

Partnership

By working with groups and individuals to improve patient outcomes.

Change Management

By promoting structural, process and behavioural changes to support the successful use of evidence based practice, clinical redesign and outcome management.

Education

By promoting learning environments which acknowledge the constantly changing environment, and adapting our methodologies as we learn from our successes and barriers to improving patient care.

Clinician-Focused

By supporting clinicians in their efforts to improving patient outcomes.

Continual Development

By continually enhancing internal and external networking ties and improving the quality of the support provided by the Centre.

Approval for a clinically integrated system model

Following four months consultation during which the ideals for the Centre were promoted to interested parties within and outside A+ a formal proposal to establish the Centre was presented to and endorsed by the Redesign Committee.

This final approval in November 1997 coincided with an invitation to join the Orthopaedic Service at Auckland Hospital, which was in the process of establishing a clinical pathway for patients admitted with a fractured neck of femur. Following a review of their pathway for this group of patients, and a discussion on the Centre's role and purpose, the clinicians decided to broaden their existing interpretation of a clinical pathway and to use the Centre's CIS model as the framework for their project.

Unfortunately, during this period Robin Youngson left the Centre to establish the Clinical Leaders Association for New Zealand. Subsequently the Centre employed the part-time services of Hamish Murdoch, who was completing a science engineering degree, and Zahin Rahim, a psychology graduate. In 1999 Hamish and Zahin became full-time employees of the Centre, and four part-time

students Don Yang, Gus McMorland, Leanne Cawood and Debbie Williams have recently joined them. This group now constitutes the Centre's membership.

Further assistance for the Centre's work is provided by the Occupational Health Service, which invites selected A+ staff recovering from accident-related injuries or long-term illness to join the Centre part-time during their rehabilitation phase. These people have contributed a wide range of skills. For example, we have received help with secretarial support, data collection and patient interviews. While this arrangement has served to keep administrative costs to a minimum, the major benefit has been the diversity of ideas each member has brought with them, and their willingness to be actively involved in the Centre's activities.

Background to the invitation to participate in the development of a clinically integrated system model

When the Centre accepted the invitation to join the fractured neck of femur project we actively participated in this team by sharing our ideas about a CIS model and the ways in which it might be implemented. However, the participatory action research approach was not to be part of this process because this group had appointed its own three successive project managers.

The opportunity to explore how a CIS model using a participatory action research approach might work came when the members of the orthopaedic team suggested that the Centre become the project manager for a new group of patients and guide the development of a CIS model for this group.

It is important to note that this invitation was extended not because the previous project managers had been unable to guide the fractured neck of femur process, but because of their prior clinical commitments. An added burden identified by these project managers, was attempting to promote and guide the development of a CIS model when they had had no previous exposure to it. Although we were in a similar position, the Centre members had the advantage of being able to devote our energies to reading and reflecting on the available literature in the area of clinically integrated systems. Without the practical experience we had gained while working with this team on the fractured neck of

femur project, we would not have had the insights into the complexities of project management. This experience guided our reflections as to how we might develop a CIS model using the principles of participatory action research for the fractured ankle project.

INVITATION TO FORM A NEW TEAM

In November 1998 a decision was made to appoint a full-time clinical nurse specialist to oversee the implementation phase of the CIS model for patients with a fractured neck of femur. At the invitation of the Orthopaedic Service, the Centre accepted responsibility for co-ordinating this phase of the project until the nurse's appointment was confirmed in January 1999. We also accepted an invitation to guide the research process for a new team of clinicians that would develop a CIS model for patients with a fractured ankle. As part of this brief, our work would focus on expanding the concept and potential of a CIS model. We were also asked to consolidate and integrate where possible some of the positive learning experiences we had gained during the fractured neck of femur project, particularly with regard to the suggestions we had proposed as to how the research process could be carried out.

Thesis consideration

A member of the fractured neck of femur team suggested that work on the new project be undertaken by a new interdisciplinary team under the guidance of the Centre members. They saw this as an opportunity to have wider clinician involvement with a CIS model, and a chance to gain experience in a research process. During this discussion phase with this team, I asked if consideration could be given to using this second project as a case study for my thesis, and received unanimous support for this request.

I also proposed that if any potential participants were interested they could become co-authors of the thesis. This idea raised some debate, and my offer was not taken up. Many of the clinicians were already undertaking postgraduate studies outside hospital hours, and felt that co-authoring a thesis would add to an already heavy workload. Some participants also felt uncomfortable asking their colleagues to consider the idea, as it could give the impression that

research experience was required rather than being an opportunity to learn about research. While the Participants agreed that the final decision to approve the thesis proposal lay with those who would be involved in the new project, they asked to act in a facilitating role. This offer was accepted, and the following plan was implemented.

The potential participants would be approached by their colleagues from the fractured neck of femur team and asked to consider participating in the new project. At the same time they would be informed of my thesis proposal. Any participant could then contact me before the first meeting with any queries regarding the project and/ or the thesis. Once the team had been established, the thesis outline would be formally discussed at the first meeting. The participants would then be asked to consider the implications of the thesis proposal over the following week. If they were still agreeable, each of them would be asked to sign a consent form.

Ethical approval for the thesis was also sought from the A+ senior management team, Massey University ethics committee and the A+ Research Centre. Permission was granted by each of these units. The A+ Research Centre also stipulated that no specific results from any clinical data collection be presented in this thesis, as this type of data was part of an internal clinical audit and therefore was subject to confidentiality clauses. I agreed to abide by this condition.

PROPOSING A RESEARCH METHODOLOGY

Following the Orthopaedic Service's request to simultaneously oversee these two projects, the members of the Centre met to clarify how we saw our role in these processes. The fractured neck of femur project was in its early implementation phase, and here we saw our responsibility as continuing in the role of educators and supporting the participants' decision to formally evaluate the outcome of this phase at three months.

Our focus then turned to the fractured ankle project proposal. Continuing literature reviews, the Centre's weekly meetings and experience with the

fractured neck of femur project had led to reflection on how to avoid some of the problems encountered during this process in future projects. In particular, the application of the principles of participatory action research in a clinical setting had led us to reflect on whether all the assumptions regarding this form of research were relevant to our own situation. This led us to review and clarify our role within the fractured ankle project

The Centre's role

The Centre's members have a dual ethical responsibility: to the A+ senior management team, and to the participants we are working with in a clinical setting. The potential for conflict between these two areas is lessened by acknowledging that within the paradigm of participatory action research, this process is not a neutral, value-free one (Nyden & Wiewel, 1992; Meyer, 1993; Hagey, 1997; Wadsworth, 1998). If we clearly articulate our strategy for the introduction of a CIS model from an organisational perspective, interested participants can choose to review our policy and decide whether using this framework might meet their needs. As the aim of the Centre is to foster and support collaborative practice, the extent of its involvement in a project is negotiated on a group by group basis.

This stance has led us to conclude it is not appropriate to impose a particular approach to participatory action research before a project is undertaken. This is in contrast to the authors mentioned previously in this Chapter who argue that the researcher must select the type of participatory action research to be used in a project in order to lead the research process (Holter & Schwartz-Barcott, 1993; Hart & Bond, 1996). Instead, we are supportive of Waters-Adam's (1994) premise that, as the interrelationships between the different modes of participatory action research are complex, there can be no either/or choice. Furthermore, the Centre members agree with Chesler's (1991) premise that working in a project area is a negotiated privilege, which involves a moral obligation not to prejudge a situation.

Our lack of experience in using participatory action research has meant that we have had to develop a new set of skills to ensure that its tenets are apparent in a research process. However, we have deliberately sought to avoid making

frequent claims of proponents of participatory action research, that the researcher has the responsibility to empower or emancipate participants and ensure that they have ownership of the research process (Simonson & Bushaw, 1993; Holter & Schwartz-Barcott, 1993; Hart & Bond, 1996; Beattie, Cheek, & Gibson, 1996; Hyrkas, 1997).

We do not accept this approach for a number of reasons. The first lies with the assumption that a researcher must 'liberate' an oppressed group. This position denotes an air of superiority, with the researcher making their own subjective judgement of what or who are the oppressors. This perspective also entails a patronising approach with the researcher placed in the position of emancipating 'others' (Williams, 1995) while denying the possibility that they themselves may be constrained in their role, and that the participants need to liberate them.

McTaggart (1994) is also of the opinion that the terms 'empowering' and 'emancipating' are extravagant. He maintains that it is unreasonable to expect that participatory action research will inevitably achieve these goals. However, the process of the project may produce feelings of empowerment thanks to participants developing a new understanding of issues that have been raised. At the same time, McTaggart warns that this feeling of empowerment can strip away the sense of autonomy of those who are excluded from this source of knowledge.

The perception of empowerment or emancipation is frequently associated with ownership. This term carries connotations of dominion, possession, proprietorship and title (Collins Dictionary and Thesaurus, 1996). At the core of any process of change is a debate about who has ownership rights or the authority to sanction the intended change. The Centre's stance is that, in the health environment, no clinician can claim ownership of a process and, if this were indeed possible, it is the patient who would hold these rights. Therefore, our purpose is to avoid reinforcing traditional notions of ownership and the transferring of power from one group or individual. Rather than promote the concepts of empowerment, emancipation and ownership, we propose an alternative approach, that of stewardship, custodianship and mentoring which

seeks to ensure that the tenets of participatory action research become embedded in our roles as active participants in a research process.

An alternative approach

The stewardship role

When negotiating our role and aims with potential participants we use the term 'stewardship' to denote our intention of guiding, instead of managing or leading the research process. We do not want our role to be the traditional one in which we are perceived as the expert or principal researchers (Rogers & Palmer-Erbs, 1994) in the process. Instead, we aim to promote our position as that of consultant, educator and participant (Hall, 1981; Greenwood & Whyte, 1993; Rogers & Palmer Erbs, 1994). These role changes mean that we are not seen as the expert in a particular methodology, with the scientific process solely in our domain (Seng, 1998). Within this joint role we contribute our insights and experience, but we emphasise that these are just further contributions to the participants' ongoing discussions and decision making process (Wadsworth, 1993).

The custodianship role

Like McTaggart (1994), Wadsworth (1998) refers to the changes in perception, which occur once knowledge is uncovered during a research process. She insists that, if a collaborative relationship and a successful outcome are to be achieved, all interested parties must have a shared purpose from the outset of a project, because the ramifications of a research process extend beyond the immediate group.

The failure to create opportunities to allow interested parties to participate in the process will mean that they have not been exposed to the same learning processes as the immediate group. This leads to a risk that they will be unable to understand the practicalities of a project's findings, resulting in the rejection or manipulation of the recommendations to 'fit' the reality of their situation (Wadsworth, 1998). The identification and participation of interest groups in the early phase of a project helps to increase the power and accuracy of the theory developed, leading to both greater understanding of the problem (Brown, 1983; Wadsworth, 1998) and acceptance of the recommended solutions.

We see the participants' role as facilitating the creation of avenues for wide participation by acting as 'custodians' of the research process. This role places a responsibility on the participants to share and exchange information between the immediate group and other interested parties. To achieve this goal, the participants must deliberately create their own information infrastructures so that opinions and feedback can be canvassed widely and taken back to the immediate group. The initiation of these formal participatory structures at the beginning of the research process helps to avoid the potential for the immediate group of participants to become such a cohesive team that other views are excluded (French & Bell, 1990). Therefore, the traditional concept of being a team member and adhering to roles and responsibilities within the immediate group changes to one which involves clearly articulating the provision of participatory strategies involving the immediate group, and the colleagues they are representing.

The exchanging of information throughout a project is intended to remove the potential for sudden surprise announcements of intended change and reduce the tensions which arise when a group or individual is denied access to the new sources of knowledge that are evolving.

As part of this process, we believe that participants take on their own 'stewardship' role as they promote the aims of the research process within the wider context of their work environment. This approach, however, requires a clear understanding of what is meant by participation and the extent to which this needs to occur. This concept is illustrated in the next chapter, as the participants in the case study discuss their custodianship role and look at ways of ensuring that the opportunity to participate in the research process is a wide one.

The mentoring role

While participatory action research ideas cannot be owned by individuals the acknowledgement of contribution is important (Hanson, 1988). One way in which this can be achieved is via a mentoring system. The Centre undertakes a wide range of networking activities and is heavily indebted to skills and expert advice provided by a variety of professional organisations and individuals. In

order to maximise these sources of expertise we endeavour to 'buddy' clinicians with a particular interest in a specific topic with experts. For example, during the fractured ankle project one clinician was particularly interested in evidence based practice methodologies. This clinician attended workshops and a conference on developing skills in implementing evidence based practice in clinical settings.

Finding a research strategy

The invitation to join the Orthopaedic Service in developing a CIS model for patients with a fractured ankle placed us in a difficult situation. We sought to answer this request but at the same time had limited experience in developing a CIS model, which is a continually evolving model. We did, however, have some ideas with regard to how the research process may advance.

The components of a CIS model mean that a variety of methodologies are used to collect data during a research process. For example, the methods for gathering and analysing data for evidence based material cannot be used for clinical redesign or capturing patient outcomes. We also identified the need for a structure that would co-ordinate these activities by providing a strategy to guide the direction of the research process. This strategy would have to contain structures and processes that could be adapted to suit any patient condition and any clinical setting, while being consistent with endorsing the concept of a CIS model for improving the effectiveness of patient care.

At the beginning of the project we thought that the best approach would be to 'walk through' a possible research process with the participants in order to clarify how using participatory action research differs from conventional approaches (Merrifield, 1997), and how we interpreted this process. This information would enable the participants to decide whether or not this was the approach they wanted to take.

Schurman (1996) provides a clear and concise framework for participatory action research which demonstrates the links between the participants' interventions and the research process. The process begins with an identification of the aspects of the system that participants would like to see

changed. A theory of the situation is then developed by the participants, and data collected to test this theory. The findings of the research are then used to develop and implement the interventions agreed upon. The impact of these interventions is then evaluated. Throughout this process, key learning components are continually identified. This knowledge is embedded into daily practice, thereby directly benefiting participants and contributing to public knowledge. The advantage of this framework is that it focuses on the participants and places them in the role of experts as they work together to introduce the desired changes in patient care management.

We acknowledge that simply following this process does not constitute doing research (McTaggart, 1994). While discussion on the assumptions and desires for change provide a subjective focus for the project, these views have to be balanced with the need for research rigour (Whyte, Greenwood & Lazes, 1989; Chesler, 1991; Hagey, 1997). Our focus does not lie with the data-gathering mode per se, but with the way in which we set the participatory conditions of goal setting, data gathering, analysis and implementation (Chesler, 1991; McTaggart, 1998), and sharing these ideas with the participants.

Our intention is to show how a CIS model uses a combination of qualitative and quantitative research approaches in order to gain an understanding of the political and scientific complexes involved in a research process (Hugentobler, Israel & Schurman, 1992; Seng, 1998; Shih, 1998).

A triangulation methodology

The combination of qualitative and quantitative approaches within a single research project is commonly referred to as a triangulation methodology (Chesler, 1991; Hugentobler et al., 1992; McTaggart, 1994; Nicholas, 1995; Schurman, 1996; Foster, 1997; Shih, 1998). The purpose of triangulation is to gain a multi-dimensional view of the research question that is being studied (Webb, 1989; Foster, 1997).

Polit and Hungler (1991) identify five advantages of using a triangulation approach. Firstly, it is complementary in nature, the strengths and weakness of a single approach are reduced when a combined approach is taken. Secondly, enhanced theoretical insight is achieved, as the multifaceted nature of the

situation is uncovered by using differing methodologies. Thirdly, the pace of understanding is potentially increased as a variety of feedback mechanisms are used to obtain knowledge. Fourthly, the validity of the research is increased, as more opportunities are created for testing alternative interpretations of the data. Finally, if incongruent research findings arise there is the opportunity to critically analyse the application of the specific methodological and theoretical approaches used in the project. Maisonneuve & Ojasoo (1999) also argue that, from a patient's perspective he or she will feel more confident if all aspects of their care have been reviewed from a variety of complementary methods which may be based on different schools of thought.

The advantages of using a triangulation approach would become apparent during the fractured ankle project as the participants sought to gather and review data from the patients' personal experiences, the clinicians' assumptions, and by capturing the current reality of patient care delivery. The combination of quantitative and qualitative approaches to collecting this data would provide an in-depth insight into what changes in patient management would be of the greatest benefit to patients and clinicians. Examples of these changes are discussed in Chapter Four.

Unfortunately, the term triangulation has developed different meanings and applications across professional disciplines (Foster, 1997), and there are few clear guidelines as to how to carry out a triangulation approach (Shih, 1998).

Hugentobler et al. (1992) note that the application of multiple methods in a research project do not necessarily lead to better research outcomes. They believe that one of the key difficulties is a failure to clearly articulate how the use of triangulation techniques guides the research strategy. Consequently, at the end of a project there are no links between using triangulation approaches and any new structures, processes or behavioural outcomes.

An article by Verran (1997) on the methodological issues surrounding process improvement studies helped us to solve this dilemma. Verran argues that because of the pragmatic demands for immediate solutions, little time is available to incorporate theory into daily problem-solving exercises. In

advocating the need to move away from problem-driven research, Verran proposes a two theory driven approach. The first theory provides a basis for research development, while the second focuses on evaluation. To achieve an outcome process driven by theory, she recommends the use of a research template that shows the interrelationships between structure, process and outcomes.

Verran's concept appealed to us for two reasons. First, it is consistent with the principles of participatory action research, as this is a process in which rethinking past practice results in a theoretical reformulation leading to improved practice (Whyte et al., 1989). A research process does not necessarily have to be problem-oriented; it can be undertaken to gain a theoretical understanding of why a particular process is successful (Wadsworth, 1998).

Secondly, Verran's identification of the need for a research template overcomes a number of difficulties associated with participatory action research. For example, it has been difficult to promote participatory action research as a reliable, valid methodology because there is no clear documentation of the process (McTaggart, 1994; Nicholas, 1995; Hagey, 1997). Therefore, it can be difficult to account publicly for the improvements made (Santos, 1989). Furthermore, there is frequently a lack of understanding of what happens when unexpressed or unknown knowledge is exposed during a research process (Hall, 1981; French & Bell, 1990; Bartunek, 1993).

If the design of the research template includes explanations of these problems, how they can be uncovered and dealt with, the difficulties associated with using participatory action research can be reduced. An example of using such a process is illustrated later in this thesis, when the development of a participatory action research template to evaluate our team's performance is described.

Having discussed the issues described above we decided to draft a general overview of a research template to determine if there were linkages between structure, process and behavioural outcomes. Using the CIS model as our structural framework, we mapped out ten general phases that could be used to guide a research process:

Introduction: Overview of a CIS model

Phase One: Communication Networks; roles of participants

Phase Two: Schurman's framework of participatory action research

Phase Three: Data collection; triangulation methodologies

Phase Four: Data analysis

Phase Five: Data presentation

Phase Six: Discussion of intended changes

Phase Seven: Implementation of changes

Phase Eight: Evaluation of Changes

Phase Nine: Decision to continue or discontinue the use of the CIS model for patients.

Our intention was to use this draft as a point of discussion at the first meeting of the fractured ankle project.

How to evaluate the effectiveness of the research strategy

As a CIS model, and the way in which it could be used in clinical practice, was still primarily a theoretical concept, we needed to utilise an evaluation system that could evaluate the overall effectiveness of the process of introducing a CIS model within a clinical environment. To date, our literature search for an appropriate evaluation process has been inconclusive, revealing varying opinions as to how this process should be managed. For example, Whyte et al. (1989) propose that, rather than measuring attitudes and perceptions towards a change process, interactions and activities should be evaluated to show the relationship between employees and the organisation's performance.

In contrast, Guerrero (1995) states that it is the learning and application of new knowledge and/or technology that measure the progress of a project. She believes the transfer and application of knowledge gained throughout the research process will be reflected in the generation of new research studies

using participatory action research frameworks. Chesler (1991) expresses a similar opinion, but adds that the process must not only meet the participants' aims but also demonstrate consistency with the organisation's goals.

McTaggart (1991) takes a more structured approach to evaluation by setting out specific criteria, with a particular emphasis on the researcher's responsibility to show how the study has exemplified the principles of participatory action research. In doing so, she or he must describe how the study has improved both the understanding of practice and the social situation of the participants. McTaggart (1998) stipulates five questions the researcher must answer to show that substantial changes have been made:

- 1) How have things changed?
- 2) What has not changed?
- 3) What has been ignored?
- 4) What has been confirmed?
- 5) What has been problematic?

From our perspective, evaluating the outcome of a project at the end of the process is counterproductive, as it is too late to discuss and work to rectify the issues which have prevented a successful outcome. As an alternative, we propose to question McTaggart's assumption that the researcher evaluate the success of a project and suggest that the participants do this for themselves. We believe that this could be achieved by asking four questions at the end of each meeting:

- 1) What was the pace of this meeting?
- 2) What is the progress of the research project to date?
- 3) Are there any suggestions to improve the current process and progress?
- 4) Are there any issues needing further exploration/reiteration that are not on the agenda for the next meeting?

This tool could not only quickly identify any concerns or problems that the participants were having with the project, but would also help in our stewardship role in guiding the research process.

Developing a common understanding of terminology

The ability to share these ideas with the participants is dependent on developing a common language to help prevent misinterpretation (Hall, 1981; Israel et al., 1992; Rogers & Palmers-Erbs, 1994; McTaggart, 1998) as we discuss new approaches and processes for patient care management.

The development of a glossary of commonly used research and CIS model terminology was started by the Centre after reviewing Tingle's (1998) article on the United Kingdom's Department of Health directive which requires clinicians to demonstrate how the risk of clinical negligence in daily practice is being minimised. Tingle cites the Department's instructions on the use of terminology:

Terminology can cause confusion. Terms such as guidelines, protocols, algorithms, practice policies, profiles of care, etc. are often used interchangeably or without precise definition. It is important to distinguish between broad general statements and detailed advice, which may be specific to local circumstances (p. 673).

Unfortunately, the use of a universal glossary does not necessarily guarantee full understanding of the terminology and initial misunderstandings are to be expected (Brown, 1983). Nevertheless, had we shared our understanding of terminology at the beginning of the fractured neck of femur project, for example, our ability to recognise, uncover and manage these differences would have been greatly enhanced. The frequent confusion in the use of terms often led to contradictory views being expressed until it was established, for example, that the term 'clinical pathway' was being used to mean 'care map'.

The Centre's glossary is continually updated on the basis of the literature reports of health-care delivery trends and continual feedback from clinicians (see appendix one). We decided to initially test the usefulness of this concept with the participants involved in the fractured ankle project.

SUMMARY

Following the decision to use a participatory action research approach to introduce a CIS model into a clinical area, the Centre members discussed their role as potential participants within a research project. Our aim was to share

these ideas with interested participants so they could decide whether our philosophy was of relevance to their own situation.

The Centre's promotion of a CIS model, as a patient care framework and the use of participatory action research to guide the research project also entailed the development of a more detailed research strategy or approach so interested participants could review the implications of developing a CIS model. Consequently, we established a generic research process comprising ten steps incorporating the concept of using triangulation approaches to gather data. The importance of sharing a commonly understood language was an important lesson learnt during the fractured neck of femur project and led to the development of a glossary of terms that can be shared during a research process to help reduce misunderstanding. Finally, the adaptation of McTaggart's (1991) principles for evaluating the success of a project to allow the participants to evaluate the continual progress of their project would be suggested at the first meeting.

The next chapter describes the responses of the participants from the fractured ankle project to the Centre members' ideas for guiding a research process.

Chapter Three

REFLECTING AND PLANNING TOGETHER

I arise in the morning torn between a desire to improve or (save) the world and a desire to enjoy (or savour) the world. This makes it hard to plan the day.
(E.B. White)

INTRODUCTION

This chapter outlines the key methodological issues that arose during the developmental phase of the project and the roles and processes used during the weekly meetings. These discussions were complex and the issues that arose are summarised. The minutes reflect a spiral pattern to the discussions as the issues were explored non-sequentially over a number of weeks as we reflected upon and refined our ideas.

The suggestions of Centre members on the respective roles and research format received positive support from the participant group, and additional input from them improved the way in which the research process would proceed.

The initial focus of the project was to establish the conditions for participation, which would enable all interested parties to make a contribution to the project. Because the critical link in this process was the way in which group members behaved, clear ground rules for conducting and participating in the weekly meetings were established.

This process raised fundamental questions as to how collaborative working relationships could be established. In particular, having decided not to include a patient representative at the weekly meetings during the initial phase of the fractured ankle project meant we had to design alternative strategies to ensure that patient input remained a primary tenet of this project.

One aim of the project was to uncover and demonstrate the clinical significance of patient care management by examining and understanding our daily practice. It was decided to use both qualitative and quantitative approaches when

collecting patient data to enable us to have an in depth understanding of current patient practices. Because of the lack of commercially available data research tools we designed our own 'clinical snapshot' which involved the tracking and recording of patient progress during their hospital stay.

Before the commencement of the project, the permission of the group participants to describe this process as part of my thesis was obtained.

However, my intention to support and illustrate this thesis by using the actual words of the individual participants was abandoned in the early phases of the study. The chapter begins with a discussion of why this decision was made.

RECORDING THE PROCESS

My initial consent form stated that I wished to record the meetings, not with the intention of fully transcribing them but as a personal aid to help with reflection on the appropriateness of the process being used. During a discussion on this issue at the first meeting, one of the participants suggested that I include quotes from these tapes. The other participants supported this suggestion, and I agreed to use pseudonyms and not to disclose any quote without the expressed permission of the individual concerned. While acknowledging this generous and unexpected gesture of support, I decided to abandon this process after four weeks.

Williams (1995), in her paper on 'Ethics and Action Research', describes an incident in which a nurse related a drug incident to her. The subsequent decision to discuss this information in a public forum, even with the permission of the nurse, caused an ethical dilemma. The circumstances of this conversation were unclear to Williams, who was uncertain whether the exchange was being relayed to her as a friend, colleague or researcher. Williams' predicament was reflected in my own experience as I listened to the recording of the meetings.

Playing back the first recorded session initially caused me no concern, as I focused on my own performance. For example, I checked to see whether I was dominating the conversation and if all the participants had been given the opportunity to contribute. Listening to the second session caused me some anxiety, because some of the participants were not speaking. However, in

recalling this meeting I could remember their facial gestures as indicating support for the conversations taking place. It occurred to me that taping distorted the reality of the meeting process by ignoring the silent partner of participation, active listening.

This impression was confirmed when I paid particular attention to body language in the following two meetings. It was apparent that some of the participants frequently used facial gestures as a means of expressing their approval. They were clearly participating.

In describing the process of dialogue as a moment in time in the process of research, Wadsworth (1994) made comments that offered some insight into my growing discomfort. In her view, a dialogue must be contextualised within a particular time and circumstance. By listening to these tapes outside the meeting environment, a distorted view of the dialogue was being created.

Furthermore, from an ethical perspective, it was increasingly clear that the ability to guarantee participant confidentiality was becoming more difficult as the participants assumed their custodian roles during the meetings. For example, participant A would say 'I have discussed this issue with the other social workers' or participant B would say, 'I agree with this but need to check it out with the other physiotherapists'.

Williams' (1995) suggestion that the researcher acknowledge their moral obligation to explain why and how information is recorded in a research process led me to re-evaluate why I was taping the meetings. While my purpose had been to illustrate to the readers of this thesis the participants' ideas and views on the process used in the case study by providing direct quotes to support the discussion, I came to believe that this contravened the principles of participatory action research.

In this thesis I was seeking to discuss the development of a clinically integrated system, using a particular case study and involving participatory action research strategies. I began to feel very uncomfortable taping the meetings in my dual role as participant (representative of the Centre) and researcher. I felt this distanced me from my co-participants. When I shared these views with the group, they supported my decision to stop taping. As an alternative, I suggested

that I would use the weekly minutes as a quotation source, and the group supported this idea. However, because each participant had a turn at recording the weekly meetings, and no individual was directly quoted in these minutes (with one exception), no direct reference to these minutes is made in this thesis. Therefore I chose to focus on summarising and discussing the key issues that arose during the project based on my own perceptions as co-participant, and as researcher, using the weekly minutes as my reference source.

ESTABLISHING A PARTICIPATORY ENVIRONMENT

At the first meeting seventeen participants, representing a wide range of professional disciplines and service areas, introduced themselves and explained briefly why they had agreed to represent their colleagues in this project. The main reason they gave was a desire to learn more about a CIS model and its practical implications for patient care.

The participants' experience in working together on other projects within this work environment was evident from the speed with which 'housekeeping' issues were dealt with. Very quickly the group resolved that meetings would be held on Thursdays from 7 to 8am (and the Centre agreed to provide breakfast). The need for a commitment to attend meetings was accepted, although apologies would be accepted for illness and holidays. If absences occurred, it was expected that a substitute would be sent. Recording the minutes would be a shared responsibility, with each of us taking a turn at this task. The timeframe for the project was six months. The next phase of the meeting focused on formulating the ground rules for a number of key issues associated with the group project.

Leaving the group

Ironically, one of the first issues, which arose, concerned the replacement of participants if they had to leave the group before the completion of the project, as some clinicians were on rotational ward rosters. It was agreed that if this did occur for any reason, including an increased workload, a replacement representative would be nominated by the clinician leaving the group. At this point I alluded to Hanson's (1988) recommendation that, prior to the commencement of any project work, the issue of a participant leaving before

completion and their right to future acknowledgement of their contribution should be discussed. In her opinion, irrespective of the reason, a participant who leaves before completion should be entitled to be acknowledged only in the footnotes in any future publications. The participants considered that this recommendation was too harsh, particularly if a participant had to leave the group near the end of the project.

However, providing a degree of protection against any misrepresentation of the remaining participants' intentions and actions was seen to be important. To ensure that only valid and up to date information was publicly presented, it was agreed that any participant would need to come back to the group to discuss any conference or publication intentions arising from the group process and outcomes. If these were perceived as being consistent with the project's aims, participants would give their support. This decision was reflected in a ground rule that any participant had the right to withdraw from the group at any time, and that their contribution would be acknowledged, but that no guarantee of authorship in future publications / presentations would be made.

Managing conflict and achieving consensus

Discussion of the rights of authorship and acknowledgement led to a discussion on how to manage conflicting opinions. Initially these centred on how to find consensus, but on closer examination a degree of ambiguity as to the meaning and application of this term was revealed. While some of the participants interpreted consensus to mean supporting the decision of the majority, others were more sceptical, believing that, in spite of any group agreement, the practical reality was that if those working in the clinical area did not agree, they would simply ignore any new initiatives.

As an alternative option, I proposed that consensus, in the sense of a significant majority agreement to implement a solution, should not be sought. Participatory action research acknowledges differences and advocates that the issues arising from a diversity of opinion are negotiated via an open process. Differences which remain are then documented, reported on and thus become open for future discussion. There is no attempt to achieve or force a false compromise (Brown, 1983; Louis & Bartunek, 1992; Deshler & Ewert, 1995; McTaggart, 1998; Seng, 1998). To illustrate this I highlighted the approach taken by the

group during the fractured neck of femur study. Frequently, we had been unable to find any evidence-based material to assist our decision-making process. Instead of debating whose expert opinion should be used, the participants suspended their judgement and focused on alternative methods of finding an appropriate solution. This perspective meant that a process of consensus had occurred, not in the conventional sense of everyone agreeing on an immediate solution, but by demonstrating a willingness to set aside personal issues and biases (Lovett & Massanari, 1999), and to look at new possibilities for patient care management.

The participants acknowledged that this idea had some merit and was worth considering in the future, but thought that, at this stage, the emphasis should be on identifying and reducing possible sources of conflict. A more important factor was seen to be the creation of a collaborative and safe environment in which concerns and ideas could be openly expressed. This required each person to be committed to listening to and respecting each other's opinions and, when appropriate, adhering to the principles of confidentiality and professional autonomy. Subsequently, this formed the basis for another group rule.

One of the participants stated that an issue had caused major tension in relation to the implementation of the CIS model of the fractured neck of femur project and could have been substantially resolved if there had been better communication. This comment was validated by the other participants, who expressed their desire to avoid the common pitfall of focusing only on the internal change process while overlooking the wider organisational implications of the intended change (Beattie et al., 1996). However, I was unclear whether the participants wanted better communication infrastructures or whether there was a more fundamental disagreement as to the type of participation that should take place during this project.

Widening the communication circle

When I asked the participants how they envisaged improving communication, they in turn asked me what I meant. I referred to Whyte, Greenwood and Lazes' (1989) observation that the well-intentioned desire for participation frequently causes disillusionment from an organisational perspective. They argue that it is a commonly held view of organisational culture that the way in

which members think, feel and act is homogeneous. However, organisations are heterogeneous in nature. Thus, throughout an organisation, participation styles and patterns of communication will differ depending on the particular group and individuals concerned. Given the wide range of possible variations, Whyte, Greenwood & Laze ask whether combining these communication issues in a single viewpoint can be called participation? The participants agreed that this was a problem, and wanted to know how to resolve it.

Unable to provide a definitive answer, I referred to Wilcox's (1996) argument that the meaning of participation can be clarified by defining it according to differing interests and situations. He proposes five levels of involvement. At the first level is *Information*, in which information is given to others about a group's intentions for change. The second level is *Consulting*, which allows for some discussion and feedback on a group's pre-determined options. The third level, *Deciding together*, encourages the bringing back to the immediate group additional options and ideas from other sources. The fourth level is *Acting together* which is characterised by the formation of partnerships to carry out joint decisions. The final level is *Supporting* independent community interests, whereby groups are given funds or advice to develop their own agendas within set guidelines.

Wilcox believes that the term 'partnership' is frequently abused, especially when the provision of information and consultation is erroneously presented as participation. In his view, effective participation occurs when different interests are satisfied and there is a demonstrated willingness to come together to achieve a common purpose. Under the influence of Wilcox's ideas we widened our initial decision to identify key stakeholders outside the immediate group to include the level of participation that could be sought.

The development of a participatory infrastructure for this project began by focusing on the immediate work environment. Participants accepted responsibility for ensuring effective channels of communication between this group and their colleagues. These interactions extended beyond the immediate ward environment to encompass their own separate departments. While the details of achieving this goal were left to the individual participants, it was

agreed that participation in the group included taking responsibility for ensuring that this occurred.

Using Wilcox's terminology, it was decided that, level four involvement, the act of making joint decisions, would be the aim of this group. It was recognised that the success of this process would be dependent upon achieving the third level of participation, deciding together. In turn, deciding together would be influenced by the discussions undertaken by this group, and by the discussions each participant had with their colleagues. Consequently, a double looping pattern of participation would be established as ideas and decisions flowed back and forth.

After the key stakeholders were identified, contextualising the same communication process within the wider organisation was deemed inappropriate because this brought a wide variety of interests into play. For example, patients were frequently transferred to and from other orthopaedic wards, and these were seen as important participatory links. Initially, one of the participants suggested that minutes be sent out to all the areas that we thought may have an interest in the project as a means of improving participation. However, others felt that, in view of Wilcox's recommendations, a more fundamental issue was to determine the level of desired participation by each of the groups. The participants agreed that interaction in these areas would be a mixture of informing them of our plans and inviting feedback on the options we were considering. Hence, a regular newsletter for all interested parties was thought to be the most appropriate avenue to communicate the group's aims and plans. It was also decided to have a six-monthly open invitation meeting to provide an opportunity for all interested groups or individuals to meet the participants to discuss the progress of the project.

A total of eight principles were identified as key elements for the successful management of meetings. These principles were summarised into eight points that were confirmed as the ground rules (see Appendix Two). The participants then focused their attentions on reviewing the research framework proposed by the Centre members.

A common language

The participants felt that the use of the glossary of key terms as recommended by the Centre members was an excellent starting point, and the definitions were reviewed together. The only query was about the generic use of 'clinician' for all personnel working in the hospital / community and involved in delivering and managing patient care. While there was agreement in principle for the need to reduce the distinction between individual professional bodies and management by finding a common term to describe how they worked together to achieve a common aim; to improve patient outcomes, the word 'clinician' was seen as having connotations of a medical nature. Unfortunately, we could not find an alternative phrase, and it was decided to continue to use it and to re- evaluate its appropriateness after six months.

The use of the glossary also led to a question from one participant as to whether we had any interesting articles on clinically integrated systems. I explained that the Centre had a library filing system that included a rating for each entry. Each week we would read an article, rate it and, if we thought it good, it went into our library. We were more than willing to share these articles on the understanding that our selection was a biased one. A participant expressed some concern about the potential size of the library resource. They already had a large reading commitment which they were unable to fulfil, and were unwilling to take on additional reading. It was agreed that any articles the Centre thought were particularly relevant to the issues raised during this project would be circulated amongst the group, on the understanding that it would be up to individuals to decide if they would read them. If any of the participants wanted more readings they could contact the Centre. This arrangement was well supported during the succeeding months. Requests for further reading material were made not only by participants in the group, but also by clinicians working in the wards and other departments.

Agreement for the proposed participatory roles and research strategy

The group accepted the principles of stewardship, custodianship and mentoring, and this concept provided an early and unexpected bonus for the project. The participants identified a need for a clinically skilled clinician to continue to drive the project once the developmental phase had been completed. One participant

suggested that this person should be identified at this early stage and seconded to work with the Centre members in order to gain additional experience in developing a CIS model. A participant was chosen for this role, and a commitment was made for this person to work with the Centre for two days a week to learn more about the principles of a CIS model, and to provide practical assistance such as data collection for the project.

The Centre's proposed phasing of the process for the development of the CIS model for patients with a fractured ankle was reviewed and accepted by the participants, who agreed to work together on the developmental details of the project over the next four weeks. This phase of the project is discussed later in this chapter.

The proposed meeting process / progress format based on McTaggart's framework (1991) was also well received. However, one of the participants commented that this included no reference to their performance as a team. Consequently, it was agreed that there would be ongoing questioning of the performance of the group by adding the question, 'our performance as a team to date is ...,' to the weekly meeting review format.

Approval for the thesis proposal

The final subject for discussion was my proposal to write up this process for my thesis. Because I had sent out the information sheet and consent form to the participants with the first meeting agenda some confusion had arisen, and a large number of participants had forwarded their approval before the first meeting. With the participants' agreement, we reviewed the thesis proposal together.

As we went over the initial information sheet and consent form, the question of why I was not taping the initial session arose. I explained that the plan had been to review the conditions of the thesis proposal as a group first, then provide a week's opportunity for each individual to reflect on the implications of this request. Unanimous support was given for the thesis study to begin with this meeting. However, while accepting this offer, I requested that the conditions of the thesis proposal be amended in view of the decisions made at this meeting. For example, in the first information sheet I had not included details of any

procedural agreements, such as the intervals at which meetings would be held and the length of the study, as the participants had not yet decided this.

Consequently, it was agreed that I would redraft the information sheet to include these details, and send it together with a consent form to each participant (see Appendix three). At this time it was also agreed that, if any participants left during the project, they would inform their replacement that I was undertaking my thesis on this project. When the new participant joined the group they would be invited to consider my thesis request. I also requested that, in order to reiterate the right of an individual to withdraw their consent to participate in my thesis project at any time without any consequences, this statement be included in the ground rules. This was approved by the participants.

Patient participation

One of the first objectives of the team was to create an avenue for patient participation in the project. Two options were considered. The first centred on finding a suitable patient representative who was already a hospital inpatient. This idea was quickly dismissed as being too intrusive on that patient's privacy. It was also thought to be inappropriate to ask a patient to consider representing other patients' views during the acute phase of their own hospitalisation.

A second option was to use focus groups of patients who had completed their post-operative recovery period. However, one participant questioned the timing for establishing such groups. If our purpose was to establish the CIS model with the aim of improving patient care, was it ethical to ask patients to give up their time in this early phase of the project to discuss issues that we may have recently identified as needing attention, and were already addressing? The participants supported this view but still wanted some sort of patient involvement to occur.

I referred to a literature review by Marcia Kelson (1996) on the issues surrounding patient involvement in clinical audits, as the points she raised were pertinent to this discussion. Kelson notes that there is confusion in terminology, with no clear distinction being made between the interests of patient / consumers and relatives. While the literature promotes the development of patient consensus as good practice, no clear method to achieve this has been developed. The most common patient involvement process is the use of

structured questionnaires which focus on patient attitudes and satisfaction at the point of care delivery. Frequently, the lack of patient participation when seeking to improve clinical processes is justified by clinicians as avoiding the 'tokenism' of having only one patient representative on a committee. However, Lindow (1993, as cited by Kelson, 1996)⁹ refutes this stance with a counter-argument that when clinicians form a committee they are not subjected to the same type of critique. Kelson's conclusion is that there is little published work on the sorts of outcomes patients want and how they wish to have this information given to them.

In the light of Kelson's findings, we made a number of decisions. The first was to discover whether the outcome expectations of patients and clinicians were the same, or if they had different viewpoints. We agreed to exclude the perspectives of relatives or caregivers as we felt it was important to focus our attention on one group and manage this process well. Also we were mindful that we had to be careful to avoid spreading our limited resources too thinly.

It was anticipated that, while individual patient outcome goals might differ, common themes might emerge if all the patients' responses were reviewed together. We avoided the use of a structured questionnaire, which would limit the patients' responses, and agreed to ask two semi-structured questions to help uncover themes associated with outcome expectations. The first question was: "With regard to your fractured ankle, what would you like to know or happen during your hospital stay?" One participant suggested that hospital inpatient goals might change if the patient had an opportunity to reflect upon their stay. It was possible to explore this concept when the patients returned for their six-weekly outpatient visit. At this time patients would be invited to answer the second question: "When you were in hospital did the things that you wanted to happen occur and, if not, what could we have done to help you?"

Another participant suggested that the group consider following two initiatives introduced to facilitate patient participation during the fractured neck of femur study. The first initiative was an information sheet, based on a pictorial care

⁹ This secondary source has been cited because Lindow, V. (1993). Buyer Beware. *Health Service Journal*, 12, p 24 could not be obtained.

map (Bumgarner & Evans, 1999), setting out what to expect with regard to care management on a day to day basis. However, this pictorial care map had been designed by the clinicians with no input from patients. The alternative suggestion was to use this concept but base the information for patients with a fractured ankle on the views expressed from the patients' feedback on their outcome expectations. The second initiative currently being trialed is a free-text patient feedback sheet, on which patients and relatives (with the patients' permission) are invited to document any comments, suggestions or questions regarding their care. The primary care nurse on each shift reviews the sheet for any feedback and addresses any concerns the patient/ relative may have. These two initiatives were supported by the participants, and were to be incorporated into the new structure for patient care management, which will be discussed in Chapter Four.

The participants then outlined what they thought the patients' outcomes might be so they could compare their perceptions with the patients' expectations when these were known. Areas of potential patient concerns identified were the desire to know a discharge date, returning to sport and work, Accident Compensation, a desire to be pain free, and the long-term implications of the accident. From an outpatient's perspective, particular concerns were expected to be the timing of cast removal, the rehabilitation process, and social problems resulting from the accident. These assumptions would later be confirmed or refuted by reviewing the responses from patients.

While these discussions focused on the immediate outcomes for the patient, there was no provision for collecting information on the long-term outcomes of patient care. I suggested introducing the Short Form 36 (SF36) as a means of capturing this data. The SF36 is an internationally validated generic health measurement that asks patients 36 questions which assess three major health attributes and eight health concepts (Lansky, 1993). The first attribute is functional status; the patient is asked about their physical and social functioning, as well as any role limitations due to physical or emotional problems. The second attribute monitors patients' well-being; questions are asked as to their mental health, energy/fatigue and pain levels. The third

attribute provides an overall impression of the patients' health with questions about their general health.

While the SF36 is a structured questionnaire, the Centre members promote the use of this form because it is consistent with the Nelson and Watson's(1994) clinical value compass recommendation for assessing long-term satisfaction of care from a patient group perspective.

The participants supported this concept, but they expressed concern about whether patients would want to fill out such a long questionnaire. An alternative proposal was that we should determine the degree of support patients would have for completing this form in the future. This suggestion was endorsed and a letter of introduction to the patients explaining the intention of the SF36 questionnaire was then drafted.

Clarification was then sought from the Research and Development department at A+ as to whether these questions needed to be forwarded for ethical approval. As the questions were considered to be part of a clinical audit and no individual patient's identity would be revealed, this department confirmed that no further ethical approval was necessary.

The decision not to include patient representatives as participants in the group during the initial phase of the project led to discussions on the need to create new organisational infrastructures that would encourage better patient participation. Some participants felt this was premature, arguing that, as the intention of the project was patient focused, issues associated with developing better avenues for patient involvement would continue to emerge as a better understanding of the current structures and processes were gained. This led to a discussion on alternative perspectives, with one of the participants arguing that, if our role was to ensure a patient focus, we needed to create an infrastructure that would guarantee this happened. To avoid making impulsive unilateral decisions about the development of patient participation strategies, or losing this focus, some of the participants suggested the inclusion of a patient focus question in the weekly meeting progress review format. This idea was unanimously approved, and the following question was added: "How do we

think today's decisions/discussions contribute to ensuring that the patients will have the opportunity to actively participate in their care delivery?"

DEVELOPING THE RESEARCH METHODOLOGY

Uncovering our assumptions

Before we focused on what data needed to be collected for the project, discussions were held on our assumptions about the current effectiveness of the management of patients with a fractured ankle. This began as a brainstorming exercise with the identification of good practice and barriers to implementing better care. On completion of this exercise a pattern of themes emerged, which were subsequently grouped under four headings: areas for improvement; areas of good care; lack of understanding of current practices; and postoperative complications. Areas identified as needing improvement were: better discharge planning; clarifying orthopaedic clearance; and providing patients with better information as to what to expect while in hospital. Greater understanding of other clinicians' roles and functions was also desired. Frustrations were expressed at theatre delays, and questions were asked as to why these occurred and what could be done about them.

Aspects of patient care which were thought to be good included follow up, pain control, and physiotherapy. However, it became apparent in our discussion that there was a lack of a common understanding about the daily aspects of clinical care that was being delivered. For example there were inconsistencies as to when luer lines were removed and why chest x-rays and full blood counts were needed.

The postoperative complications that were identified were divided into two categories. In-hospital complications were thought to be associated with three clinical problems: swelling, infection and poor mobilisation. Outpatient problems were perceived as being less clinically orientated, with an increase in socio-economic problems as patients attempted to cope with constraints on their mobility.

We agreed to revisit these assumptions once we had gathered data that either confirmed or challenged them. However, the record in the minutes (11/03/99) that documented this exercise notes that there were "conflicting impressions,

with care being implied". The overall conclusion was that the current system appeared to be fragmented, and this had led to conflicting information being given to patients.

At the conclusion of this session the participants raised questions about the type of data collection that would help us to gain a greater understanding of current practice. They decided upon five action points. The first action was to go back to their colleagues, discuss the assumptions they had regarding patient care management, and identify the sorts of questions they would like answered. The second action was aimed at potentially broadening the scope of clinical practice from within the Service by identifying any new or emerging trends for treating patients with ankle fractures. Each of the participants agreed to undertake a general literature search within their area of expertise to look for emerging trends or innovations in patient care management that had occurred during the past two years. The third action point was to review the data collection tool used in the fractured neck of femur project, as this operation follows similar procedural processes when repairing a fractured ankle. The final action point arose from my recommendation that participants read Hatler, Milton and Clark's (1999) article on 'Methodological Issues in Performance Improvement in Integrated Systems'.

This article provides a number of salient points about process improvement studies. The authors stress that, while these studies follow the same procedures as a traditional research process, there is a need for new interpretations that replace the classic research criteria of rigour, validity, reliability and generalisability (Verran, 1997; Seng, 1998; Hatler, Milton & Clark., 1999).

Unfortunately, Hatler, Milton & Clark (1999) point out that there is a lack of specific data collection tools to guide the development of process improvement studies, so researchers must create their own. To assist them in this process, they recommend following three steps to construct a research template. The first step is to establish a panel of experts in the field of study who can construct the necessary tools, such as questionnaires and surveys. Once these tools have been designed each item must be reviewed to assess its ability to collect the required information. Finally, data collection should be timed so as to ensure

the capture of meaningful and reliable data. The first step in this case study had already been met by the establishment of the interdisciplinary group, with some participants having prior experience with designing questionnaires. The second and third steps would be met when we discussed the issues of the validity and reliability of the data collected for the project.

Once we had completed our 'homework,' the group discussed the implications of this paper and immediately challenged one of the guidelines proposed by Hatler, Milton & Clark. The issue in contention centred on the authors' belief that the planning of the process, and the collection and analysis of the data collected should be designed around the desired outcome. This suggestion was perceived as being contrary to the principles of this project and concerns were raised about who determined what these outcomes should be. As the previous group discussions had highlighted a lack of understanding of the current processes of care management, the participants believed that it would be premature to determine what the outcomes should be.

This perspective supports Wojner's (1996) view that, at the beginning of a process improvement study, one of the most important and interesting questions to ask is "What do my patients look like?" (p. 4). As well as asking this question, the participants were also seeking to identify their actions of care and the rationale for them. To achieve this goal, we decided to follow a similar data collection approach to that used in the fractured neck of femur project. This process entailed taking a 'clinical snapshot' of current practice to determine the activities of care management.

Designing the research template for the clinical snapshot

The developmental work for the clinical snapshot began with outlining the progress of a patient from admission to discharge. A multifocal pattern emerged with a number of possible routes that patients could take. For example, the patient could be admitted to the emergency department or the acute assessment ward, then to the ward or go straight to theatre. Having identified these possible routes the participants outlined the range of activities that took place at these 'stops'. This process also revealed the unnecessary repetition of some activities. For example, clinical histories and examinations were undertaken a number of times by a variety of clinicians.

These activities were then classified into the six broad categories of care management which had previously been identified in the fractured neck of femur project. The first category, entitled Rehabilitation, combines admission, and discharge details and patient demographics. The aim of this category is to highlight the need for proactive discharge planning at the admission phase. The second category is termed Clinical Intervention, which is broadly defined to include all interactions between patients and clinicians. For example, activities such as mobilisation by physiotherapists, assistance from social workers with obtaining benefits, as well as nursing and medical staff interventions are all recorded in this area. The third category includes the administration and documentation of regular medications, such as antibiotics and antiemetics. The fourth category outlines the frequency and type of clinical recordings. The fifth category outlines the tests and procedures that patients undergo, and the sixth focuses on the collection of data related to the patients' theatre experiences. Following a recommendation by one of the participants' a seventh category was added pertaining to outpatient care management. This category had received little attention in the fractured neck of femur study, as the majority of patients had been discharged into the care of hospitals in other regions.

Information seeking questions under all seven categories of care were then formulated. The rationale for these questions was derived from current practice activities, for example, the day of mobilisation, the number of tests and procedures done and the doses of antibiotics given. Further information was then sought to help explain potential differences in care, such as the type and length of operation, the degree of swelling and the mechanism of the injury. Some of the questions also pertained directly to the quality of care being delivered; for instance, the response time for medical assessment, and waiting times for surgery and for rehabilitation beds. These questions subsequently became the primary data-gathering tool for the clinical snapshot.

Hatler, Milton & Clark's (1999) recommendations for ensuring the collection of reliable and valid data were followed once the clinical snapshot questionnaire was completed. They state that, in process improvement studies, reliability refers "to the consistency of measures, instruments or processes used in data collection" (p. 55), and identify two key elements to achieve this. The first

element is the degree of stability of the tools used by the researchers. For example, if two researchers consecutively weighed a patient, the set of scales should record the same weight. The second element of equivalence is attained when the methods used in a study by more than one researcher result in similar findings. For example, if two researchers assess a patient chart in the same way and draw the same conclusions, the equivalence requirement has been met.

Hatler, Milton & Clark also propose that there can be no absolute definition of validity in process improvement studies because of the dependence on context. As the confounding variables, such as the severity of patient illness, are different in each context, different outcomes will occur. However, there must be a logical connection between the process of care being measured and its outcome. Hence, the authors define validity either in relation to the accuracy of an instrument and the processes used for measurement, or the extent to which the instrument or process describes, or is consistent with, the concept that it is measuring.

We then reviewed the questionnaire using the criteria for stability and equivalence, and by re-examining each question for possible ambiguity. A small group of 'trackers' repeated this process. These trackers were either nurses who were recovering from accident-related injuries and working part-time for the Centre, or members of the Centre. Together we reviewed the data tool and clarified any confusion about terminology or the meanings of the questions. Agreement was also reached on the areas in which information would be collected. This was of particular importance because of the large volumes of duplicated information recorded in the clinical notes. For example, any hand written diagnosis was to be avoided, as the accuracy of an initial diagnosis could be challenged once the patient was admitted to theatre. Therefore, the diagnosis was recorded from the type written theatre notes.

The trackers then sought to achieve equivalence by reviewing recorded information from two sets of patients' notes and comparing their findings. While equivalence was achieved between the trackers, the notes were collectively reviewed again because of the commonly recorded phrase, 'not stated'. This

exercise confirmed the scanty nature of the current documentation, which would ultimately be reflected in the final data analysis.

Process validity was reviewed by checking each item for its ability to show a logical connection between a clinical intervention and an associated outcome. For some of the questions, there were obvious links between intervention and outcomes. When surgery was delayed, for example, there was a link between the length of this delay and the reasons for it. However, for other questions the immediate link between the intervention and outcomes was less explicit. For example, demographic data were collected on the characteristics of the patient group, but the impact of these characteristics on outcomes could not be anticipated until the final analysis was undertaken.

The construction of an Access database by members at the Centre also helped to ensure stability, equivalence and reliability. An Access programme does not allow a programme designer to repeat the same information. This meant we had to be explicit in our definitions. For example, the term discharge was unacceptable, and had to be broken down and defined according to categories of: discharge from the ward, discharge from rehabilitation and assessment, and final discharge. The programme was also designed so that not only did all categories of information have to be answered yes, no or not stated, they also had to be entered correctly. The design of the programme helped to ensure that this occurred, as the logic behind the text entry contained special rules. For example, date and time had to be entered in a certain way and were only accepted in the correct format.

While the data came from the patient reviews, the clinical snapshot would be commenced at the same time as the patient's admission. This decision was based on Hatler, Milton & Clark's recommendations and the Centre's past experience. Previous attempts by Centre members to collect data retrospectively had led to delays in obtaining clinical records, some of which had been lost. This process had also led to the collection of out-of-date information, as care delivery patterns had changed in the interim.

In identifying the target group and the patient numbers needed for the clinical snapshot, consideration had to be given to finding a balance between obtaining

a representative sample or doing the whole group and spending too much time and human resources on collecting large volumes of data. The hospital statistics for 1998 recorded a total of 366 patient admissions with fractured ankles. We estimated that this would equate to an average of four to five admissions per week to the wards. Based on these figures, it was calculated that the progress of 30–40 patients could be tracked in two months. These figures were consistent with Hatler, Milton & Clark's recommendation of studying 10% of an identified population. However, the identification of the target group was a more complex issue.

The creation of an explicit definition of a simple fracture of an ankle, with clearly identified inclusion and exclusion criteria for the clinical snapshot, determined that the patient group was homogeneous. All patients had suffered the same type of injury. While this meant the sample appeared to be homogeneous, the emergence of a heterogeneous pattern was anticipated. The implementation of care mapping in other hospital centres has led to findings that variances of up to 30% will occur in any patient group (Bower, 1994; Laxade & Hale, 1995; Wilson, 1998). We thought that the anticipated heterogeneity could present us with a potential problem in the final data analysis. It was postulated that if an inconclusive pattern of care trends emerged, this could be a result of naturally occurring patient variance or due to sampling inadequacies. A decision was made that if any discrepancy was found, further tracking would be undertaken until a clearer pattern of patient care management arose.

Having determined the numbers of patients to be tracked, we re-examined the issue of how to collect the patient questionnaire data. It was decided to use the same 30 to 40 patients as in the clinical snapshot. The plan was that the trackers would personally approach each patient with a letter of introduction, explain the intention of the study and, if the patient expressed a willingness to participate, determine a convenient time for them to complete the questionnaire.

On completion of the clinical snapshot draft we circulated it amongst our colleagues. Aside from valuing their input with regard to the questions being asked, we wanted to take this opportunity to explain the research approach at this stage, rather than explaining or justifying the methodology at the end of the study (Strassner, 1997). This was seen to be particularly important because the

process we were recommending would be unfamiliar to many clinicians, and we needed them to endorse the process for data collection and analysis.

Following the implementation of minor changes, such as the correction of spelling mistakes and the addition of more theatre related questions, the draft was re-circulated for final comment and accepted as the formal format (see Appendix four) for the clinical snapshot study.

Approval for the data collection was also sought from the Research and Development Department at A+. As with the fractured neck of femur study, no further ethical approval was necessary as no individual patients would be identifiable and the data was being collected purely for the purposes of clinical audit.

When agreement on the final format had been reached, a pilot study using five patient admissions was undertaken. As no consequential changes had to be made to the format, the data from these patients was included in the main clinical snapshot.

SUMMARY

After six meetings, we had designed a research template to capture a realistic snapshot of the current daily practices of care management. The initial focus of the meetings was on the group's desire to develop a greater understanding of patients' needs. The recording of the current process of care represented a new research slant for us. While our purpose was to examine the clinical significance of care management rather than establish cause and effect relationships, the process still had to be a reliable and valid one. This meant developing a new understanding and learning how to apply the principles of process improvement within a research study.

The development of our research template had evolved naturally into a triangulation approach, from the realisation that more than one source of data would be needed if a clear picture of the current reality of care management for both patients and clinicians was to be uncovered. Qualitative and quantitative approaches were developed as we reflected upon our assumptions, anticipated

the patients' expectations, formulated a data collection tool to gather reliable and valid information for analysis, and sought to gather patient comments.

Both qualitative and quantitative data were to be collected in order to answer different sorts of questions. We placed equal weight on the contribution that each approach offered. In the next chapter I discuss how this commitment was achieved as the findings from the data analysis were used to change existing practices of patient care management.

Chapter Four

REFLECTING AND ACTING TOGETHER

There have been many investigations performed, her most recent M.S.U was sterile but a repeat had been arranged.

Extract from a Registrar's clinical notes.

INTRODUCTION

As was previously mentioned, ethical approval for this study was granted on the basis that as its findings are part of a clinical audit for the Orthopaedic Service, so they are not available for publication. While this limits the ability to relate any specific data directly to changes that were made, it is possible to demonstrate the overall process of how the data findings were used to help develop the CIS model for patients with a fractured ankle. Of particular significance is the introduction of computerisation as the tool to establish and implement this model.

The decision to design a computerised CIS model broadened the scope of this project, and a generic computerised CIS model is currently being piloted for two groups of patients, those with fractured neck of femurs and those with fractured ankles.

The final version of the CIS models that are being piloted, offers clinicians many features beyond the focus of this thesis. Instead, this chapter describes how some of the fractured ankle project findings, together with the evaluation report on the fractured neck of femur project, influenced the development and automation of a CIS model. As part of this process, there is a discussion of some of the issues surrounding the introduction of computers into a clinical environment.

Finally, the implementation of this system required an intensive education programme. The introduction of this programme represented a challenge in that teaching occurred while the CIS model was still being designed. However, this strategy increased the opportunities for clinicians to actively participate by contributing new ideas and modifying aspects of the model before it was finally implemented.

The chapter opens with a discussion of a number of issues related to the use of computers in a clinical environment.

THE INTRODUCTION OF COMPUTERISATION

The controversy about computerising a CIS model did not originate with this project. Debate surrounding the pros and cons of introducing computerised patient records into a clinical environment had occurred at a senior clinician management level as a result of the findings from the evaluation phase of the fractured neck of femur project.

This report found that, while the principles of a CIS model were gaining acceptance, difficulties were being experienced in charting patient variances using a pen and paper format. Feedback from the clinicians stated that there were major problems, such as erratic follow-up of variances due to a lack of space on the paper format, and forgetting to follow up on the documented variances. It was clear that the simplistic design of the columns for charting variances which recorded a date and time of entry, care interventions, a signature and a follow-up date, meant that the form was failing to manage the information required to allow the application of the CIS model to individual patient situations. Reflecting on these findings, the participants from the fractured neck of femur project and the Centre members, concluded that we had introduced the concepts of a CIS model without fully understanding the information infrastructure that would be needed to support this system. We decided to move immediately to computerisation to ensure the survival of the CIS model.

The Centre's perspective

From the Centre's perspective, the findings from this evaluation were so conclusive that we decided that we could not support a pen and paper system for the fractured ankle project. However, our decision to introduce automation led to a senior management debate. For reasons of confidentiality, the specific issues that led to the debate will not be discussed in this thesis. However, the impact of the possibility that the Centre would withdraw from this project if computerisation could not go ahead was raised by some of the participants in the fractured ankle project. These participants thought that this would be an unreasonable outcome. They argued a more proactive attitude was required: the project should proceed regardless of whether computers would be used in the future.

Other participants had a different view, believing that the results of the fractured neck of femur project should be heeded: automation was a key issue in the ensuring the success of this project. When a participant asked who could continue to lead this project if the Centre withdrew, I emphasised that the participants of this group would. This comment drew a unanimous response that this would not be appropriate. It was argued that the Centre had accepted a 'stewardship' role for this project. This had led to an expectation that the Centre would provide on-going guidance in the development of this CIS model. If this assistance was withdrawn, the project could not continue. The tension of the situation was relieved when one of the participants proposed a compromise.

This participant was of the opinion that, as this project was an evolutionary one, it was difficult to foresee what the final outcome might be. While the research process for collecting data had been clear, it was hard to envisage what a CIS model would look like in the end and how all the data that had been collected would be used. It was suggested that we should integrate our existing ideas into a visual representation of a CIS framework. This framework would help to demonstrate the linkages between the possible structures, processes and outcomes that we were discussing, and how, for example, evidence based material could be linked into the model. Furthermore, this participant maintained that, this would highlight to the opponents of computerisation why this tool was pivotal to the success of a CIS model.

Discussion of the merits of this proposal resulted in an agreement that, until the final outcome of the organisational discussions was known, the Centre would continue in its stewardship role and that together we would consider possible formats for a computerised CIS model. At the same time, it was agreed that it would be logical to use the same format for patients with fractured neck of femurs as an alternative to the pen and paper system.

The decision to continue to use the pen and paper CIS model for patients with a fractured neck of femur while a new format and computerised version was being developed was a significant one. It was hoped that an increased educational focus on the concept of variances would help to clarify and consolidate the principles of charting by exception during this phase. This commitment signalled the Orthopaedic Service's willingness to support the development of the CIS model despite the difficulties that had been encountered.

Principles for the computerisation of patient information

Before any designs were drafted, we discussed the fundamental principles underpinning the introduction of a computerised system. This led to the realisation that any system had to:

- 1) Link together the concepts of evidence-based practice, clinical redesign and patient outcome management at the point of contact with the patient.
- 2) Be interdisciplinary in nature.
- 3) Provide the patients and families with the information they desired.
- 4) Be user friendly.
- 5) Provide reliable and valid data.
- 6) Ensure patient confidentiality and privacy.
- 7) Meet the medico-legal requirements for documentation.
- 8) Have the flexibility to accommodate future clinical innovations in care delivery.
- 9) Be economically viable and reliable.
- 10) Provide educational assistance.

One significant request, which would have a direct impact on the design of the CIS model, was that free text be incorporated. The opportunity for clinicians to write and plan care was seen as an important aspect of ensuring individualised patient care management whatever technology was used.

As we began to examine the practicalities of implementing these principles, the argument for purchasing computers for the Service extended beyond the ward's boundaries. It was recognised that any integrated system would need to incorporate the emergency department, theatre and the outpatients department. Opportunities for the exchange of information between general practitioners and the hospital were also identified as necessary.

The Centre estimated that approximately \$25,000 worth of computer hardware would be required to facilitate the flow of information through hospital areas to the patient's bedside. This proposal did not include the cost of hardware to transfer information to general practitioners. However, it was considered possible to develop a communication channel between the hospital and general practitioners providing the latter had access to computers.

Before beginning to design a computerised system we decided to apply for the required financial assistance. After we discussed this intention with our colleagues and departmental heads, a statement of support for the introduction of computers into clinical practice for the CIS model, containing signatures from each of the participating disciplines, was presented to corporate management. This proposal was accepted and full financial assistance was granted.

A literature search was then undertaken by the Centre members to find suitable designs. When no models were found the search moved to the Internet. This led to the identification of a small number of sites that promoted computerised clinically integrated systems. However, for commercial reasons there was limited access to these models. The sites that did provide software demonstrations focused on financial databases with limited clinical application. All the sites found on the Internet stated that their programmes were continually being upgraded. Nevertheless, some of the agencies asked for a down payment before a system could be demonstrated, with one company requiring an initial outlay of \$10,000 for a 60 day trial of their system.

The presentation of these findings to the other participants raised a number of issues. The preoccupation with financial databases by the sites that had provided examples was found to be inappropriate, especially as the designs were heavily influenced by the need to meet the requirements of American

insurance companies. A second issue was the distance of the programme companies from New Zealand. There was concern at their ability to provide support for, or to understand, the New Zealand health environment. Thirdly, the annual licensing fees in an environment of fluctuating exchange rates were also of concern. Finally, the developmental nature of all the available programmes led to the question: Why not start small, and develop our own computerised version to meet our needs? As a result, Hamish Murdoch from the Centre accepted responsibility for programming and for providing information systems advice for the development of the CIS model.

Two ongoing interdepartmental relationships were also established at this stage. The first was with the A+ Information Systems Department. While this department would provide advice to the Centre on technical matters relating to the computer programme, we also wanted to ensure that any design would be compatible with future strategic and operational plans for information systems. Members of this department actively encouraged us to pursue the development of a CIS model and participated in discussions on how this might be used throughout A+ in the future.

The second networking relationship was with the A+ Board lawyers, who have helped to ensure that the CIS model meets medico–legal requirements, particularly as the legal precedents for using computerised clinical systems in the New Zealand health environment remain unclear. In addition to reviewing the legal standards, this department has also given advice on copyright issues and on how to write guideline statements.

INTEGRATING EVIDENCE BASED PRACTICE INTO A COMPUTERISED CIS MODEL

The literature search

While the clinical snapshot data was being collected we continued with our weekly meetings, focusing on gathering and reviewing evidence based material on the treatment of patients with fractured ankles. A participant in the team, Glyn Jones, a senior staff nurse in the outpatient orthopaedic department, and Sarah Tritt, a librarian, had carried out a preliminary literature search using databases such as those of the Cochrane Library, the Joanna Briggs Centre,

and Medline. This search had uncovered literally thousands of articles associated with the key words 'fractured ankles'. Sorting through this data, Glyn and Sarah identified two key themes. Many of the articles dating back to the 1950s and 1960s were classic works on the anatomy and physiology of ankle trauma, and emphasised determining the appropriate classification on the basis of fracture site and differing surgical approaches. The second theme was related to recommendations for early surgical intervention to prevent the future development of osteoarthritis.

Few of the studies had used randomised-controlled trials and the group decided to widen the scope of the search. We were attempting to find evidence that focused on supporting decisions made on a daily basis by clinicians such as establishing the most appropriate type of pain control for patients. Each participant provided key words from their areas of practice and we compiled a list of significant issues, including mobilisation, physiotherapy, and pain relief. Glyn and Sarah undertook a second literature review using these key words in a variety of combinations. This review revealed similar problems to the first, with Glyn noting the difficulty of attempting to generalise the findings to this project. Nevertheless, Glyn collected any articles that appeared to possibly have some clinical relevance.

At the completion of this search, 50 articles had been gathered. The narrow range of subjects, centering on surgical techniques, physiotherapy and mobilisation, meant that our original intention of distributing articles to the area of expertise to each participant had to be abandoned. In order to share the workload of reviewing the articles, I suggested critiquing the research with everyone using the same framework to evaluate the articles. This suggestion was seen to be helpful because it was impossible for every participant to have an in-depth understanding of every topic.

Dempsey and Dempsey's (1992) guidelines for critiquing research were chosen as the review format. I had previously used this framework in a cardiac setting. The format had been popular amongst the clinicians because the language used is clear and non-intimidating and the guidelines are easy to follow.

Unfortunately, in the context of this project, this form proved to be inappropriate because the majority of the articles did not adequately describe the research methodology used. Consequently, when attempting to critique our assigned articles, many of us were left wondering if we had understood the research critique guidelines correctly. When these concerns were shared with the rest of the group, others acknowledged experiencing similar difficulties. Therefore, we each gave a summary of the articles and made our own comments on the relevance and applicability of the articles to this project.

The overall conclusion of this literature review was that there was a lack of evidence based material to support our daily practice interventions. As we had neither the time nor the expertise to carry out a systematic review of the total literature ourselves, we followed Onion's & Walley's (1998) view that we could rely on our own clinical evidence to guide our decision-making. The advantages of using this approach began to emerge when we realised that bringing an interdisciplinary perspective to our data collection process would provide a potentially powerful source of data not dominated by one professional view (Colyer & Kamath, 1999). In addition, our process would incorporate patient feedback as a valid source of data (Gerrish & Clayton, 1998). No articles were found in the literature search that presented the patients' perspective. However, we were conscious of the criticisms made in the literature of failure to embed the available evidence in daily clinical practice and evaluate its effectiveness by measuring patient outcomes. To help resolve these issues we focused on designing methods that would provide better access to the sources of evidence.

Embedding evidence based material into the CIS model

One of the problems identified in integrating evidence into daily practice was the inability to have it at the clinician's fingertips. The ability to hyperlink into documents on the local Intranet led us to adopt this principle for the CIS model. By clicking on any activity of care, a clinician can open a Word document containing the source of this evidence. The document includes explanations of why, how, and when this activity should be undertaken and who is ultimately responsible for delivering this care. Thus, all activities of care in the CIS model are underpinned with evidence accessible by the clinician with a click on the

mouse. Figure One illustrates some of the information that is contained within the Word documents.

Figure One: Example of accessible evidence based material to help guide the taking of clinical observations.

CLINICAL OBSERVATIONS - VITAL SIGNS Print

[Exit Back to MAP](#)

<p>CONTENTS</p> <p>General Issues</p> <p>What constitutes vital signs?</p> <p>Respiratory Rate</p> <p>Pulse Rate</p> <p>Blood Pressure</p> <p>Cuff Size</p> <p>Temperature</p> <p>Vascular Changes</p> <p>Neurological Changes</p> <p>Action Plan</p>	<p>VITAL SIGNS: GENERAL ISSUES</p> <p><i>Vital Signs vs Observation</i></p> <p>While there is no clear definition in the literature, the panel of experts which guided the systematic review process argued that observations is the more appropriate term, in that it more accurately reflects current clinical practice. This implies that patient observations need not be limited to the traditional four parameters but supplemented with other measures as indicated by the patient's clinical status.</p> <p><i>What Constitutes Vital Signs?</i></p> <p>Traditionally, the term "vital signs" is used in reference to the measurement of temperature, respiratory rate, pulse rate and blood pressure. However, within the literature there are suggestions that these parameters could be supplemented with other useful measures such as nutritional status, smoking status, spirometry, orthostatic vital signs and pulse oximetry.</p> <p>Studies have demonstrated that in some situations pulse oximetry is useful for detecting a deterioration in physiological function that might otherwise be missed. This has resulted in a reduction in the number of investigations undertaken and has changed the planned management of patients. On this basis, pulse oximetry has been recommended as a useful addition to the four traditional measures of physiologic status.</p> <p><i>Frequency of Vital Signs</i></p> <p>There is only limited information regarding the frequency with which patient observation</p>
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Formatting evidence based practice material

All the information contained in a hyperlinked document on the CIS model is formatted in the same way. An index at the side of the document serves as an aid for the clinician to directly access the required information. The inclusion of action plans in these documents is based on the development of an interdisciplinary plan that can be used by clinicians as a guide to what action to take when findings are abnormal.

By introducing an agreed interdisciplinary plan, together with the evidence supporting these decisions, it is hoped that the amount of 'not knowing' by clinicians will be reduced. Clinicians will now be able to share information,

rather than have limited access to information that has traditionally been the exclusive domain of a particular profession. This has meant giving more professional autonomy to some clinicians. For example, it has been traditional practice for medical staff to order tests and procedures for patients with fractured ankles. To reduce the delay involved in waiting for the standard orders, nurses can now initiate these activities without having to wait for medical approval by using all the available evidence to guide their clinical decision-making.

Widening the scope for using evidence based practice material

The hyperlinking feature has opened a wide range of opportunities for clinicians to access and promote information. For example, two of the issues discussed during the literature review were the variations in the categorising of ankle fractures and this Service's use of the Webber ankle classification system. The Webber system uses three broad categories to identify the type of ankle fracture, a simple format that allows house surgeons to make the initial diagnosis. In comparison, the AO¹⁰ system uses seven criteria in making a fractured ankle diagnosis and the final diagnosis is dependent on confirmation by an expert radiologist (Court–Brown, McBirnie and Wilson, 1998). The prohibitive cost of the AO scheme is the main reason why it is not used here. However, one of the participants suggested assisting new house surgeons to make correct diagnoses by utilising the hyperlinking facility. As a result, under the medical assessment section the term Webber classification is hyper-linked to a Word document, which provides a detailed description of the type of fracture, including diagrams of the site of the fracture.

The benefits of using hyperlinking as an educational tool are not limited to its use by clinicians. The hyperlinked information for patients on the CIS model uses a minimum of technical terms so that it can readily be of use, and printed off, for patients and their families.

¹⁰ AO is the German abbreviation for Arbeitsgemeinschaft für Osteosynthesefragen.

INTEGRATING CLINICAL REDESIGN INTO A COMPUTERISED CLINICALLY INTEGRATED SYSTEMS MODEL

The driving force in determining which evidence based material is incorporated in the CIS model is the clinical redesign component, in which care maps play a pivotal role in guiding clinicians and helping them determine if a patient variance has occurred.

While drafting possible designs for the computerised model, we decided to make the activities of patient care management the core focus of the design. Using the patient activities of care that had been determined in the clinical snapshot, seven key categories were created: Rehabilitation; Clinical Interventions; Medications; Clinical Observations; Outpatients; Theatre; Tests and Procedures.

Each of these categories then became the framework for the patient care maps. Although each map contains specific information, it was agreed to use a standardised design format for entering data. The format is similar to that of a traditional critical pathway, with every activity of care graphed on a vertical axis against a horizontal timeframe axis.

The activities of care and the desired timeframe for patients with a fractured ankle have primarily been determined by the findings of the clinical snapshot. Thus, the relevant clinical and demographic findings of patients admitted to this Service have been incorporated. Hence, we have avoided the problems Yandell (1995) and Gibb and Banfield (1996) associated with importing a standardised critical pathway from another setting. Furthermore, the decisions were not financially driven (Gibb & Banfield, 1996) but rather centred on improving the performance gaps in patient management identified by analysis of local data.

As an example of this process, we identified a need to reduce both the high incidence of duplicated patient information and the repetitive questioning patients had to undergo. We compared the type of patient information that each clinician collected and collated this information into one area called 'patient details'. As this is an acute service, no single clinical profession could be readily identified as the first point of contact with the patient. Therefore, we have linked the various admission and patient assessment forms used in the services together and used the same format for commonly asked questions on each of

these forms. This shared information is now transferred across these forms. For example, the nurse may record the initial details of the trauma and the patient demographics. These details are then automatically transferred into the doctor and occupational therapist assessment forms, with the computer recording the name and occupation of the person entering the details. One consequence of this process is that social workers have discontinued the use of their own admission form and are using the Rehabilitation map on the CIS model to obtain this information.

Incorporating the clinical snapshot findings into the CIS model

After the data analysis from the clinical snapshot was completed, each of the activities of care was reviewed in order to identify the current patterns of and trends in care management. For example, under Clinical Interventions the number of patients who had intravenous lines (IV) was tallied, and the median day on which patients had the IV removed was established. Unfortunately, we were unable to identify why 'early' or 'late' removal occurred because of the lack of documentation of the reasons for this. This comprehensive review process led to the establishment of a baseline for all the care activities against the median timeframe.

Some decisions to exclude or discontinue certain aspects of care were easily made on the basis of this analysis. For instance, one of the initial assumptions had been that a large number of patients would have urinary catheters. The data findings refuted this belief. This meant that in the future, catheterisation would be charted as a variance rather than a planned activity.

Some data showed that, while the majority of patients were receiving similar care within the same timeframe, the reasons for some activities were not clear. We concluded that, in many cases, 'tradition' was dictating these routines. A decision was made to change some traditional practices on the basis of both the data findings, and judgements based on participants' clinical expertise. For example, it was decided that the frequency of clinical observations could be significantly reduced, and a new recommended timeframe for daily observations was introduced.

To ensure that patient safety was not compromised by these changes, it was reiterated that clinician judgement was paramount and that both these activities

and timeframes were only guidelines and not protocols. The use of the computer to concurrently track and monitor individual and patient group responses did, however, provide an additional safety measure to detect early deterioration in a patient's condition. This point was highlighted by Hamish Murdoch, who explained the dangers inherent in recording a patient's vital signs on paper. This system does not account for the true time intervals between taking and recording patient signs, which can result in misleading trends. In comparison, a computerised format adjusts for these time differences, thereby accounting for early and subtle changes in the patient's condition by displaying these changes in real time.

Removing patient exclusion criteria

While the major activities of patient care were included on the care maps, the category of 'other' has been added to each of the maps developed to date in order to provide clinicians with an opportunity to record unexpected activities of care. This addition has meant that, unlike traditional critical pathway approaches in which the patient is taken off the pathway if new variances occur, or only 'straightforward' patients are placed on the pathway, all patients can be included on the CIS model, regardless of their condition.

During our data analysis it became clear, that even if patients did experience some degree of variance in their progress, this variance did not necessarily preclude them from complying with other aspects of the care map. In fact, it was seen as important that they stay on the map so that routine care interventions, such as the removal of sutures were not overlooked. Tracking the patient's variances in relation to the completion of predetermined care activities was also seen as an essential component for future data analysis. For example, if the patient's variance was nausea, did this impact on other activities, such as mobilisation, and did it impact on their length of stay?

As part of this innovation, a coding system was introduced to give clinicians more flexibility in documenting patient responses to care activities. Each activity of care has been assigned its own code, which highlights the type of intervention that is required. For example, we noted that some care activities, such as examination of intravenous sites might require frequent reviewing. This

necessitated a system by which it could be noted quickly that this had been done.

A personalised confidential code is used by each clinician when logging on to the CIS model system. Once they have logged on, the first two letters of their code are all that is required for them to sign off or document further activities of care. Figure Two illustrates several of these concepts. The same design format applies to all the maps. For example, in the clinical intervention map the key for data entry is coded according to the requirements for each activity of care. The activities of care are listed on the vertical axis while the horizontal axis gives the suggested timeframe for these activities. A key for data entry alerts clinicians to the interventions associated with each activity of care.

Clinically Integrated System for Fractured Ankle Pts

frmMain frmSignoff : Form

PT MAPS AND VARIANCES Pt Search

Signoff " Cancel OK

NHI_No: NID2345

Name: Alec Baldwin

Clinical Intervention

KEY for ▨ Stopped/Removed/Achieved and signed

Data Entry ▤ Conducted/Reviewed and signed ▩ Inserted and signed

Enter N/A and Sign if Not Applicable

Enter Var and Sign if Entering a Variance

Current Date: Day19

	Admin Date	OpDate	Day1	Day2	Day3
	Friday, 1 October 1999	Tuesday, 12 October 1999	Wednesday, 13 October 1999	Thursday, 14 October 1999	Friday, 15 October 1999
Psycho Social (AM)	▤ A Fogarty	▤ A Fogarty	▤ A Fogarty	▤	▤
Psycho Social (PM)	▤ A Fogarty	▤ A Fogarty	▤ A Fogarty	▤	▤
Mobilisation			▨ A Fogarty		
Luer	▩ A Fogarty		▨ A Fogarty		
Full diet			▨		
Wound/Plaster Care				▤	

Record isn't locked by another user

Start Inbox - Microsof... Exploring - thesis Microsoft Word... EndNote 3 Click for CIS 13:26

Figure Two: An example of one key category of a patient's care map. Activities of care associated with clinical interventions are listed on the vertical axis. A data entry key provides the codes for the different types of activities the clinician is undertaking against a horizontal timeframe. Each of these activities is underlined, signalling to the clinician that these words are hyperlinked to evidence based documents.

INTEGRATING PATIENT OUTCOMES INTO A COMPUTERISED CLINICALLY INTEGRATED SYSTEM MODEL

Because of the inclusion of the broad category of 'other activity' in the care map, and the criterion of no patient exclusion, a suitable structure and process

for dealing with a potentially large number of patient variances had to be constructed. This proved to be one of the most challenging aspects of developing the CIS model.

While the results of the clinical snapshot were used as baseline data for the care maps for patients with fractured ankles, the design of the CIS model for managing patient variances was also influenced by the evaluation findings from the fractured neck of femur project. As one of our intentions was to design a generic CIS model, the addition of the variance data that had been collected during the evaluation phase of the fractured neck of femur project broadened the scope of possible variances. This data gave us a more realistic clinical picture, particularly as the patients admitted with fractured ankles had few co-morbidities.

One of the main findings from the fractured neck of femur project was that clinicians using a pen and paper system had used free text to record variances. This led to an enormous variation in the use of terminology. For example, 'rising blood pressure', 'B/P up', and 'high blood pressure' were all used to describe hypertension. Secondly, the difficulty of finding and organising variances amongst a large volume of notes led to a decision to develop a more structured format for identifying and treating variances.

Designing a variance documentation system

The process of designing a variance documentation system began by taking all the variances gathered in both projects and sorting them into general categories. Three main themes emerged: post-operative progress complications; pre-existing co morbidities affecting post-operative progress; and preoperative delay.

We then posed the question: What was the impact of each variance?

Consequently, the three main sources of variances were further subdivided by area of impact. By analysing these subdivisions it was found that the impact of these variances generally clustered around either anatomical/physiological or psychosocial issues. A further subdivision of these variances according to their impact resulted in a more specific description of the variance.

Following this in-depth analysis three main categories of patient variances were established: the source of variance; the impact on the general system or the cause of the variance; and the specific complaint for each of these categories.

By combining the information in each of these three categories, a wide range of possible patient variances can be documented. Examples include, post-operative progress complication; cardiovascular; anaemia, or preoperative delay; psychosocial; patient unwillingness to sign consent form. While the majority of variances are triggered by the patient activities identified on the care maps, the category of 'other' has been included in each of the three main categories to allow clinicians the flexibility to create a variance using a specified format. Figure Three illustrates the format for charting a new variance. Once the clinician has identified the source, system or cause and specific complaint, these keywords form the permanent record of the variance.

Clinically Integrated System for Fractured Ankle Pts

Variance Entry Form

NEW VARIANCE FORM [Undo](#) [Exit](#)

Patient NHI No NID2345
 Details Name Alec Baldwin

Keyword	Source of Variance	System or Cause	Specific Complaint
Details	Post-Operative Progress Complications	Gastrointestinal	Abdominal pain
Current Actions/Rationales	Details of other Keyword	Resolved or Discontinued	Abdominal swelling
			Cirrhosis
			Constipation
			Diarrhoea
			Haemorrhoids
			hyperkalemia
			hypokalemia
			Inflammatory bowel disorder
			Jaundice
			low albumin
			Malnutrition
			Nausea
			Nausea And Vomitting
			Other Gastrointestinal

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Figure Three: An example of a drop down menu from the specific complaint category. The clinician can click on to the appropriate keywords or enter their own.

Documenting actions and rationales

Having chosen the key variance words, the clinician uses free text to describe the actions and rationales for the management of the patient variance.

However, the inclusion of free text carries some conditions. To reduce the amount of time spent trying to find, and potentially repeating, the documentation of a variance, a current variance summary list must be reviewed by the clinician before they can access the free text area (see Figure Four). This list is used by clinicians to check to see whether their variance has already been recorded. If it has, the clinician clicks onto this variance, where they can review and update any information. Alternatively, the clinician can create a new variance.

Clinically Integrated System for Fractured Neck of Femur Pts

frmVarSelection : Form

MAP BOX VARIANCE SELECTION FORM Cancel

If the variance has already been created —>Choose it from the list below

Or Click here to create a New Variance

Initial MAP Source	Source of Variance	System or Cause	Specific Complaint	Open Variance
Clinical Intervention	Pre-Existing Co-Morbidities	Gastrointestinal	Abdominal pain	Open this Variance
Clinical Intervention	Other	Other	acidosis	Open this Variance
Tests And Procedures	Post-Operative Progress Complications	Cardiovascular	Anaemia	Open this Variance
Clinical Intervention	Patient and Relative Feedback	Patient Feedback	Compliment	Open this Variance
Clinical Intervention	Post-Operative Progress Complications	Cardiovascular	Angina	Open this Variance
Clinical Intervention	Other	Integumentary	Pressure Area	Open this Variance

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Figure Four: An example of the current variance summary screen. Clinicians can either gain access to a current variance or create a new variance from this form.

Grouping actions and rationales around variances

Discussions about the volume of information and the difficulty of following up variances that had been highlighted by the fractured neck of femur evaluation led the Centre members to suggest the grouping of all the actions and rationales associated with a variance into one area. However, each action and rationale would still be seen as a separate identity. In reviewing the data collected in the fractured ankle clinical snapshot, it was often difficult to understand why a particular intervention, for example, a chest x-ray had been ordered. The lack of documentation follow-up of results or interventions compounded this problem.

This finding led us to question that if there were a number of actions and rationales associated with resolving a particular patient variance, was it possible to identify which of these actions and rationales were the most effective interventions? To determine if this theory was a relevant one each action and rationale associated with this variance would need to be documented separately. In essence, the purpose is to support Archie Cochrane's premise that, even if there is little empirical evidence to support the effectiveness of clinical interventions (Hunter, 1995), it could be possible to track and identify the outcomes of treatment within a clinical setting. For example, in the fractured neck of femur study, nausea and vomiting was found to be a major post-operative complication. It was suggested that if maxolon was charted on a regular basis for all patients for 48 hours, rather than as required the incidence would drop. This intervention proved to be successful, but in order to demonstrate the effectiveness of this change, a manual retrospective chart review had to be undertaken. The ability to monitor changes to current practice could be more effectively monitored by concurrent patient group analyses via the computer.

We also surmised that, if actions and rationales were documented regularly, the computerised format could enhance the follow-up of outcomes by sending automatic reminders once a current action/ rationale had expired. Figure Five illustrates how these ideas have been formatted. The keyword details display the overall variance. In this case, Mr Baldwin has a preoperative delay because

of a long theatre list. The nurse has entered some interim instructions. They have then clicked onto the 'continue action/rationale' button, which has enabled them to activate a review time. The date and time and signature have been automatically entered, and a reminder message will appear when the action/rationale time has expired. The nurse has a further option to continually review this time for the next 72 hours without having to update the free text. The number 1.00 at the bottom of the screen indicates that this is the first action and rationale around this variance. These numbers automatically change each time a new action/rationale is added or removed. By clicking on the 'back' and 'forward' buttons, the clinician can review each action and rationale.

Clinically Integrated System for Fractured Neck of Femur Pts

Variance Entry Form

NEW VARIANCE FORM [Undo](#) [Exit](#)

Patient NHI No POU5675
 Details Name Alec Baldwin

Keyword Source of Variance System or Cause Specific Complaint
 Details Pre-Operative Delay theatre delay long theatre list

[Current Actions/Rationales](#) [Details of other Keyword](#) [Resolved or Discontinued Actions/Rationales](#)

Action/Rationale Description Signature: annie fogarty Start Date: 14/10/99 15:51:11

Have spoken to Mr Baldwin about his delay to theatre due to the large number of acute trauma cases. Theatre will phone at 17:00 with an update on the theatre list progress. Meanwhile please keep nil by mouth. Wife phoned and has been informed of delay. Will phone at 18:00 [Press F7 to check spelling](#) [Undo](#)

Continue Action/Rationale Discontinue Action/Rationale
 Ongoing at Discharge Resolve Action/Rationale

Signature: annie fogarty
 Start Date: 14/10/99 15:51:26

Review In
 30 mins 4 hrs 24 hrs
 1 hr 8 hrs 48 hrs
 2 hrs 12 hrs 72 hrs

Reason Why Action/Rationale..

Review at: 14/10/99 19:51:26

[Back](#) [Forward](#) [Add New Action Rationale](#)

Action/Rationale 1.00 of 1.00 Action/Rationale

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Figure Five: An example of the documentation of a current action and rationale around a pre-operative delay variance.

The discontinuation of a particular treatment or intervention was also seen as important information to share with all members of the interdisciplinary team. In particular, some participants expressed their frustration that treatments would suddenly stop for no apparent reason. Therefore, a special section that requires the clinician to document why a certain intervention was stopped has been added. For example, the physiotherapist may request that the patient walks four times a day, but the nurse cancels this until the patient's haemoglobin level rises to 100. By clicking on to the 'resolved' or 'discontinued' action/rationale, the clinician can easily access this information.

The same process is used when resolving an action/rationale. A message box requests that the clinician briefly enter the outcome, such as, 'observations now stable', or 'nausea resolved.' This information contributes to the variance analysis by recording the patient's response to an intervention.

INTEGRATING PATIENT FEEDBACK INTO THE DEVELOPMENT OF A COMPUTERISED CLINICALLY INTEGRATED SYSTEM MODEL

The majority of responses collected from patients about their in-hospital expectations provided positive feedback for the clinicians, particularly in relation to how they had met the need for information on the long-term effects of their injury. However, there were requests for more information on what to expect on a day-to-day basis while in hospital. The majority of these requests could be answered by developing a pictorial outline of the activities to be expected during hospitalisation, based on the newly formatted care maps.

While developing this outline, we were conscious of Gibson & Heartfield's (1996) criticism that the traditional critical pathway, while promoting the concept of collaborative practice, fails to demonstrate how this has occurred. To help ensure that the pictorial guideline did not become purely an information sheet for patients with no format for their individual comments or concerns, a structure and process for enhancing participatory interaction between the patient and clinicians has been created. A fourth key variance source, entitled 'Patient and Relative Feedback', has been created. In this section the nurse can record any feedback received from a patient or their relative.

Another similar activity intended to encourage the process of regular interaction with patients is the collection of feedback from patients via a patient care activity entitled 'psychosocial' that has been incorporated into the Clinical Intervention map. The hyperlinked information behind this activity outlines the nursing responsibility to specifically check each morning and afternoon whether the patient has any queries or feedback in relation to their care map or any other concerns. If there are none, the nurse signs the psychosocial box; otherwise she or he documents the variance with an action and rationale in relation to the issues the patient has raised. This feedback is not necessarily of a negative nature; it may, for example, be an expression of thanks from a patient to individual clinicians.

Unfortunately, it was not possible to review patients' expectations of their outpatient visits within our allocated timeframe. While the majority of patients gave permission for us to interview them in the Outpatients Department, there was poor follow-up of this for a number reasons. At the time of the study no scheduled outpatients appointment was made when the patient left the ward. This meant that the trackers had difficulty in following up patients. The delay of six to eight weeks before the follow-up visit at outpatients led to a decision to extend the timeframe for collecting this data. The introduction of a new hospital-wide scheduling system has now given the trackers access to outpatient dates, resulting in better communication and co-ordination of activities between the trackers and the clinicians in the Outpatients Department.

However, during the project three different versions of outpatient instructions were discovered. These were revised and merged into one format, with information sections relevant to the type of care that is currently being delivered. For example, while in hospital, the patient receives information on cast care, including instructions such as keeping the limb elevated and the plaster dry. On discharge, the patient is given a further set of instructions offering advice on how to maintain and care for the plaster, and a general information sheet on who to contact for further assistance. The previously separate emergency and outpatient instructions have been replaced by the same set of instructions, and arrangements have been made to have these translated into other languages as a result of the ethnicity data collected in the clinical snapshot.

The patients' initial responses to use of the SF36 questionnaire were positive, but this questionnaire was withdrawn while the copyright for using this form was negotiated as we wished to develop a computerised version. While we were undertaking these negotiations the opportunity of using scanners within the Department arose. Subsequently, we were granted permission to use the SF36 form and a further group of patients with fractured ankles received this questionnaire. We are now piloting the form in conjunction with the use of scanners to see if patients have any objections to using the form in this manner.

IMPLEMENTING AN EDUCATION PROGRAMME

As the clinical snapshot findings were analysed, and a possible structure for the CIS model began to emerge, an intensive education programme for clinicians was undertaken. The initial phase of the education programme was limited to clinicians working in the two orthopaedic wards. Once the model had been established in these areas, the system would be used for other services by authorised clinicians such as physiotherapists and pharmacists, who can access and use the system from their departments.

The purpose of the educational programme was not to 'teach' clinicians how to use the computer system. Rather, the emphasis was on sharing the data findings, the proposed changes to patient care management and the philosophy of a CIS model.

One of our concerns had been that, because of our increased emphasis on ensuring complete documentation, this model could be interpreted as being punitive or frustrating. Clearly, components of the system had been designed so that certain information had to be entered before a clinician could progress to another activity. For example, a patient cannot be discharged from the CIS model if there are missing or incomplete details regarding the patient's progress during their hospital stay. However, we were reassured when the inclusion of these features were supported by the majority of the clinicians who expressed a desire to share the responsibility for ensuring the complete and accurate documentation of patient care.

While the educational programme was extremely time-consuming, it allowed the Centre members to work with clinicians and observe how they used the CIS

model. Any areas where there were found to be frequent problems with interpreting what data needed to be entered or accessing an area of the system, were subsequently modified. This ongoing collaborative process had two advantages. The first was to lessen the fear that the clinician 'had to have computer skills'. We observed that this fear would dissolve once reassurance was given that no individual could 'crash' the system. After some of those who typed in free text expressed frustration at the time it took to correct spelling mistakes, we added a spell check beside the free text box. This additional support feature was well received.

The second and more important advantage was the feedback from clinicians. This led to the introduction of the 'Bright Idea' initiative, which gives public acknowledgement to individual ideas that have been accepted by the clinicians as adding value to the development of a CIS model. This is an ongoing process, as is the educational programme. As the implementation phase has got under way we have learned more about which areas of the CIS model are being well-utilised, and those that are less user-friendly are being identified and modified.

SUMMARY

The process of analysing the data collected during the fractured ankle project from the clinical snapshot and patients' feedback evolved into a larger task as the issue of computerisation and the evaluation of 'the patients with fractured neck of femur project' impacted on the ongoing development of the CIS model.

Consequently, a computerised generic CIS model has now been established that integrates the concepts of evidence based practice, clinical redesign and outcome management. At the same time, a practical demonstration of how a CIS model can be developed within a clinical setting has been achieved for patients with a fractured ankle. This process has subsequently impacted on the development of the CIS model for patients with fractured neck of femurs, which is now using the same generic computerised CIS model format to deliver and manage patient care.

This has not been a straightforward process. The lack of evidence based material, the unsuitability of automated programmes, conflict over the use of computers in a clinical setting, the phasing in of an educational programme and

delays in obtaining patient feedback have caused some tension. However, the willingness of the clinicians in the Orthopaedic Service to overcome these difficulties and live with the creation of a CIS model, knowing that there would inevitably be imperfections with it, has enabled the project to keep within the allocated implementation timeframe. The participants in the development of the CIS model and their colleagues have made a significant contribution to the emergence of a clinically integrated system which aims to improve patient care management.

Chapter Five

DISCUSSION

Getting it wrong is part of getting it right.
(Handy, 1991)

INTRODUCTION

McTaggart's (1998) five questions form the framework for the discussion in this chapter. What has not changed? What has been confirmed? How have things changed? What has been ignored? What has been problematic?

While many themes could be discussed within the context of this framework, five key issues, one for each of McTaggart's questions, have been chosen because of their particular relevance to the outcome of this project. The first issue, in answer to the first question, focuses on the theme of commitment. The second issue, answering the second question, reviews the development of a generic CIS model from the Centre members' perspective. Thirdly, in answering the question, 'How have things changed?', the discussion focuses on the specific development of the CIS model for patients with fractured ankles. Fourth, in response to the question, 'What has been ignored?', some ethical issues are highlighted. Finally, the question as to what has been problematic?, is answered from a more personal perspective as I discuss some of the problems I have experienced as a researcher during this case study.

In addition to McTaggart's questions a further question is posed, what of the future? A brief overview of the immediate implications of this project is given.

WHAT HAS NOT CHANGED?

Throughout this project the commitment to improving patient outcomes has remained the prime focus for all participants. The nature and depth of this commitment does not mean that it was possible to reach consensus on all of the issues that were raised. However, considerable attention has been given to establishing the necessary conditions for continuous participation.

Ellis-Stoll & Popkess-Vawter (1998) propose four key conditions which must be met before a participatory process can begin: motivation; the recognition of a problem; an ability to solve problems; and autonomous choice to continue or discontinue current behaviour. McGuinness and Wadsworth (1991) suggest that reflection time; an ability to take a long-term view; the sharing of ideas; a consent to experiment; and a core group to promote the change process are also essential prerequisites for creative and meaningful outcomes.

To maintain our participatory environment we have actively sought to nurture all the above conditions. For example, there has been a strong commitment to ensuring a high standard of team attendance. The minutes of the weekly review of team performance show that, during the six-month period of this project, there were five occasions when the team performance was reported to be fragmented or slow rather than the more usual descriptions of good, excellent or collaborative. While the purpose of weekly reviews was not to tally the performance ratings, it did become a gauge to help determine what factors were making some meetings more productive than others.

Poor performance was found to be directly related to poor attendance.

Attendance was defined as poor if no formal apology had been received and no alternative representative was present. Although the reasons for absenteeism were valid, when it occurred the problem was addressed immediately. These actions included the sending of reminders of the next meeting, and a number of participants volunteering to approach and discuss the absence with the individual concerned. The attention given to ensuring that the ground rules for attendance were strictly adhered to was seen as vital to preserving the participatory process.

The effectiveness of the communication strategies between the group participants and their colleagues was shown on the occasions that substitutes

for participants who could not attend came to the meetings. The offer to reiterate or explain any previous discussion points was never accepted as all these representatives stated that they had been fully briefed, and showed a clear understanding of the issues that were under consideration.

One of the conditions for establishing a participatory environment that is not mentioned in the literature is how to provide the conditions for constructive criticism. During this project there were times when some individuals outside the immediate group chose to personally vent their anger at individual participants. It was difficult to deal with these episodes when, no matter how reasonable the counter-argument may have been, these individuals were unwilling to either listen to any explanations or actually specify the reasons for their dissatisfaction. While we were committed to encouraging expressions of concern so we could work through these issues, we had no tolerance for what we interpreted as horizontal violence.

A number of options for addressing this issue were discussed. It was agreed that it was up to the individual participant concerned to determine whether the manner in which they were spoken to was appropriate. If they found the behaviour offensive, their first step was to state that the way in which the criticism was being presented was unacceptable, and that no further discussion would be undertaken until a less aggressive approach was made. Alternatively, we could ask the individual concerned to document their concerns and send to them to the group. We also reviewed our existing communication strategies.

To reduce any potential for misinformation or misinterpretation, we ensured that information was updated on a weekly basis. In order to counteract some of the rumours about the project which we became aware of, we used the notice boards in the wards and departments. We introduced the issue by acknowledging that there had been some concerns raised as to and statedThese are unfounded because..... Alternatively, we stated that we were addressing this problem by: or that we had rectified this problem by... Our fourth strategy was to concentrate on a perceived problem of over-commitment by the Centre members.

Midway through this project a clinician commented that the Centre members lived and breathed the CIS model. This comment led us, the staff in the Centre and myself, to ask ourselves if our continual enthusiasm and optimism for the project might have become too intense. We reviewed our work patterns and discovered that this over eagerness was indeed impacting on our productivity.

While we were continually reprioritising our workload as new ideas were put forward by the participants, these ideas were emerging more rapidly than we could deal with them. In effect, we were promising more than we could deliver. To gain a more realistic perspective we decided to plan out our work a week in advance in order to ensure a consistent work strategy and an even workload. This change meant that the Centre members now worked on sections of the model together, rather than our previous strategy of everyone working on different parts. The initial concern that this would slow our progress proved to be unfounded because we were able to systematically think issues through, which gave us a better understanding of where the gaps in our progress or thinking were. We could then co-ordinate our activities to address these problems.

To ensure that there were continuing opportunities for new ideas, we also introduced a monthly priority list of ideas and target dates for implementing them. This list was put on the notice boards and, as the goals were achieved, they were ticked off. If there was a delay in achieving the goal, this was explained.

To counteract some of our over-zealousness, we also reintroduced rules about taking regular breaks and not working after hours. We also began working more closely with the clinicians on the ward to co-ordinate teaching sessions with their needs. It was important to recognise that, sometimes, active participation can mean going away, and that it was better to acknowledge a difficult day for clinicians by cancelling a scheduled session.

While the incidence of verbal aggression decreased following the introduction of the above measures, they may not have attributed to this reduction. Continuous communication, which included the sharing of data analysis, discussions on how things might change, the introduction of the 'bright ideas' from the

clinicians, and an increasing tolerance for change may all have been instrumental in this change. Some participants also reported that they felt peer pressure contributed to modifying attitudes as support grew for introducing change.

WHAT HAS BEEN CONFIRMED?

As previously mentioned, while the process of participatory action research can set the conditions for undertaking research, this is not the same as actually doing the research (McTaggart, 1994). When following a participatory action research approach it is necessary to develop situational specific research strategies relevant to the area that is being researched.

The emergent CIS model, an integration of evidence based practice, clinical redesign and patient outcomes, shapes the structure for each contributing research project. This structure helps to guide the participants in the interdisciplinary group to develop new processes for care for a particular patient group. Each element within the model has its own processes for collecting and analysing patient data, while the overall action research cycle unfolds.

As the two CIS orthopaedic projects have taught us, each development was not a linear process, beginning with the collection of evidence based material, and followed by a redesigning of clinical practice leading to the capturing of patient outcomes. Instead, there were many cycles of participatory reflection on action, learning and implementing ideas (Wadsworth, 1998) as work on each of the elements of a CIS model progressed. For example, clinical redesign has its own spiral for uncovering assumptions, collecting, and analysing data which is quite different from an evidence based practice spiral, which incorporates established quantitative or qualitative approaches to gathering and analysing data.

Bringing the components of a CIS model and a participatory action research approach together has resulted in new ways of thinking and acting. It is an ongoing cycle of planning, reflection and action. The research process has been perceived as sound in quality (Seng, 1998), because the findings are valid and useful (Brown & Tandon, 1983; Hugentobler, 1992; Waters-Adams, 1994; Rolfe, 1996) to the participants and have lead to the implementation of changes to current practice.

This project confirmed our theoretical premise for a CIS model. Working with clinicians in developing models for patients with a fractured ankle showed us what was required to make a generic CIS model a clinical reality.

HOW HAVE THINGS CHANGED?

We have redesigned our original CIS model framework in an attempt to visually highlight the interconnectedness involved in managing patient care using participatory action research, evidence based practice, clinical redesign and patient outcome management (see Diagram two).

At the centre of the new diagram is the patient, the focus of our care management. This word is found within the letter A, which symbolises the A+ Network Centre for Best Patient Outcomes. From this structure a star format is created. At the four tips of the star are the key components for improving patient outcomes. In keeping with Auckland Healthcare's motto of 'excellence of care', we have highlighted the star in yellow to represent the 'gold' star of excellence.

The introduction of this new design raises three significant issues that were not evident in the first model generated in the fractured neck of femur project. The first is making the patient the focus of the model. Secondly, participatory action research no longer underpins the CIS model, but has been integrated into it. Thirdly, the links between the components of the model are less linear in appearance, denoting the interrelationships between and interdependence of each concept.

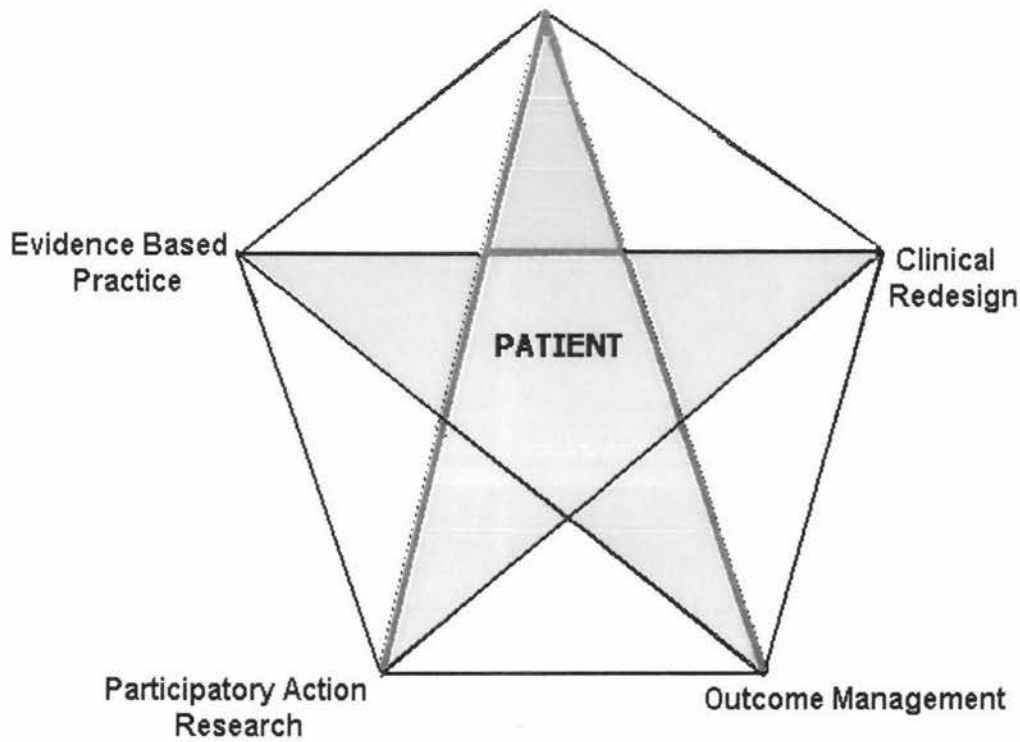


Diagram Two: The revised Clinically Integrated System Model.

The radical extent of the changes to patient care management for patients with a fractured ankle is highlighted when the process of care prior to the development of the CIS model is recalled.

The limited direct evidence of previous care was conflicting, with a number of differing versions available. In relation to what was actually happening, and who was delivering the care, each profession could detail its input and roles, but there was no computerised, integrated understanding of care management.

The argument that patient outcomes were managed on an individual day-to-day basis as patient variances arose initially sounded logical and rational.

However, when we took a more in-depth look and asked how clinicians were deciding whether there was a variance and what evidence there was that our care interventions had been effective in treating these variances, the answers were less robust. Indeed, this information was not available.

As we searched for the answers to these questions, further issues were raised in relation to avenues for patient input, communication between colleagues, the duplication of activities and documentation. The clinical snapshot which involved tracking patients through the service and documenting current practice, as well as literature reviews and patient surveys confirmed our initial suspicions. Patient management was fragmented, with many interventions based on

traditional practice, there was a lack of information about patient outcomes, and patients wanted more information on what to expect while in hospital.

Wadsworth (1998) asserts that the major challenge when using a participatory action research approach is to have a design process that allows for the greatest possible use of creativity and imagination. The lack of validated tools to assist us in gathering data in this project meant that we had to find creative and imaginative ways to apply a number of methodologies to collect data. The participants also sought to ensure the collection of valid and reliable data by using a variety of methodologies. In this project, innovation came to the fore when the multidimensional data collected was used to transform the existing pattern of patient management.

The introduction of a CIS model framework initially required new ways of thinking and acting that were foreign to us. It was not simply a matter of finding some evidence, telling clinicians what they should be doing and then measuring the results. As we began to see the interconnections between the components of a CIS model, it became increasingly impossible to look at individual parts of the model without reviewing the total impact of a decision on the whole model. The result has been a non-linear, flexible and adaptive process which, at times, has looked and felt chaotic as we have worked together to design a system, gather and analyse data, and share our recommendations on how change should occur.

Although the future success of the project is highly dependent on the development of a technological infrastructure able to achieve care integration, the unique focus and perspective that each professional discipline has brought to this process has not been diminished. In working together to achieve an integrated system of patient care, the group has moved from a multidisciplinary to an interdisciplinary perspective of patient care management as the interrelationship between, and sometimes overlapping professional skills and areas of knowledge have become clear. Consequently, some of the traditional roles and authority held by each of the disciplines involved in the process of care have been dissipated as knowledge has been shared between the clinicians in order that both the immediate and ongoing needs of the patients can be better met.

The decision to pilot the CIS model using a computer programme provides a variety of opportunities to enhance patient care. As the programme has been designed from an interdisciplinary perspective, the quality of the data will be improved because there is now an understanding of why information is being collected, even if it does not immediately impact on every clinician's activities. The removal of repetitive data as well as data on some traditional non-essential care, and the ability to share data in real time, will help to make this data more meaningful to clinicians.

The ability to automatically analyse patient variances will give clinicians an opportunity to decide on the direction of future changes in clinical practice (Jacobsen & Hill 1999) that is not reliant on labour intensive and time consuming data gathering processes such as the clinical snapshot.

The introduction of a care map, and the opportunity for patients to comment on their care using the feedback sheet, represent new processes to encourage better communication between clinicians and patients. The attention given to the details of developing a daily process for ensuring that these opportunities eventuate highlights the participants' commitment to making this process a clinical reality, rather than a good idea that would lapse over time.

WHAT HAS BEEN IGNORED?

Williams (1995) is critical of Meyer's (1993) contention that true informed consent cannot be achieved because at the start of a project of this kind the outcome is unknown. In contrast, Williams regards participatory action research as a continual process rather than a single event. Consequently, the researcher can continually enhance the ethical nature of the process by sharing their reservations and uncertainties, as well as their new knowledge, with the participants.

The formal process of informed consent that occurred with the participants in the Orthopaedic Service involved in the fractured ankle project focused initially on my thesis proposal and request for consent to it. During the project a number of thesis related issues were discussed with participants. For example, the original intention of allowing all the participants to read the final draft proved to be impractical because of the numbers of participants and the timeframe for the

completion of the thesis. It was agreed that the participants could have free access to my drafts, which they were welcome to read and comment on at any time. Some of the participants took up this opportunity, reading sections of the thesis and provided reassuring or helpful comments.

As this project is ongoing, the completion of the thesis does not mean that the need to continually address ethical issues has ceased. The experience of writing a thesis has highlighted the need for a two-dimensional approach to addressing ethical issues. The first dimension is easier to recognise. Ethical issues will be uncovered as participants explore current practices. The second and less obvious dimension is based on Williams' (1995) recommendation that, at the beginning of a research project, there should be a process to ensure that participants understand that the direction and outcome of the research cannot be predicted from the onset. Consequently, ongoing ethical discussions with regard to the overall process of the project will be as important as the ethical issues which emerge during the actual research.

While the conditions and reasons for undertaking this thesis were specifically outlined, no similar consent process is used by the Centre members with other teams wishing to develop a CIS model. Therefore, it is our intention to adapt the thesis proposal into a terms of reference document. Areas for discussion and negotiation will include how information from a project must be used. For example, this project raised the hypothetical question of what would happen if attempts were made to suppress or ignore clinical data results that pointed to poor performance by an individual clinician. In this instance, Meyer's (1993) assumption is correct. How can true informed consent for such a project be given if the outcome may be the worst possible and career ending scenario?

Nevertheless, Williams (1995) is also correct in stating that ongoing discussion with regard to ethical issues needs to be built into a research process. If this approach had been taken at the beginning of this thesis, an oversight in obtaining informed consent may have been avoided.

The need to build an ethical component into a research process was highlighted because one group of participants was not asked to consent to my thesis proposal until midway through the process. At the beginning of the thesis, I was

the only full time member of the Centre, consequently, during this case study, my attention was entirely focused on the participants from the Orthopaedic Service. It was not until a new participant joined the orthopaedic team and I asked them to consider my thesis proposal that I realised that Centre membership had grown and the members had been excluded from the consenting process. Although this has now been rectified, and the Centre members have given their consent, this omission highlighted the need to be aware of providing for the informed consent of all interested parties during a process that is constantly evolving. Had I consciously made time to step back from the case study and review the overall ethical direction of the project, including checking whether any informed consent issues needed to be addressed, this omission may not have occurred.

From a patient perspective the inclusion of the weekly question, 'How did today's decisions and discussion contribute to ensuring that patients had the opportunity to actively participate in their care delivery?', helped to maintain the focus of the project. However, there were times when we scrambled to try to find aspects of a meeting discussion that were relevant to this question. An element of 'tokenism' began to creep in until we agreed that it was better not to force the issue, and on two subsequent occasions, there was no answer to this question.

At the beginning of this project we had used the metaphor that, if our best friend was coming over, we would still endeavour to tidy the house before they arrived so that at least they had a seat to sit on, to help explain why we had not included patients in the immediate team. In essence, we could not provide this seat because our house was not in order. We needed to understand the current situation in order to find whether the seat existed and if so where was it. This became clearer as the details of the CIS model were being finalised and we found a number of avenues to increase patient participation.

However, during the design of the variance format, it was acknowledged that the plan we had to introduce for increasing patient feedback would increase the incidence of both negative and positive feedback. While there was support, and agreement in principle, from the clinicians for the patient maps and feedback sheet, it occurred to us that we needed to step back and focus on

ensuring that clinicians felt comfortable with this type of patient participation. Therefore, it was decided to implement the CIS model and monitor patient and clinician reaction to this major new initiative before introducing other channels of patient participation.

Although this choice may have meant that opportunities for patient and relative participation are currently limited, this decision also signalled our commitment to ensuring that the measures we introduced would stand up to patient and clinician scrutiny and meet their needs.

WHAT HAS BEEN PROBLEMATIC?

The role of the researcher in participatory action research, and the emphasis on their responsibility for creating a collaborative environment, caused a degree of confusion for me. To achieve this aim, I initially consciously created three separate roles, those of a participant working with the group, the co-ordinator for the Centre representing the members' views, and a researcher writing a thesis. Each of these roles involved differing expectations. For example, in the researcher role I was concerned with addressing issues of methodology that would meet the requirements of my thesis; as a participant in the group, I was focusing on being an active member of a group process; as co-ordinator for the Centre I was attempting to meet the organisational expectations for a successful project outcome. The need to balance the differing demands of each of these roles and my own imposed expectations led to uncertainty as to where my priorities lay. This resulted in role confusion and feelings of inadequacy.

During the literature search on participatory action research I read an article by Stephen Brookfield (1993) entitled 'On impostorship, cultural suicide, and other dangers: How nurses learn critical thinking'. He argues that, while critical thinking has become a "fashionable " concept (p.197), there has been an over emphasis on the cognitive aspects of this process at the expense of the emotional implications. Following work with small groups and individuals, Brookfield identified the themes of impostorship, cultural suicide, lost innocence, road running and community to describe how people live through a change process. Initially, the article appeared to have little relevance to this research project. However, as the project progressed, the change process experiences

as outlined by Brookfield, became more pertinent to my own situation. These themes are explored here in relation to this experience.

Impostorship

Brookfield (1993) describes impostorship as attempting to act in a professional capacity by portraying a sense of careful thinking and conscious actions when, in fact, you are struggling to make sense of chaos. While this emotion can be overwhelming, it can also be healthy, because it is a necessary component of experimentation. As the sense of control is challenged, the researcher must acknowledge that there is little they can do to predict and control the consequences of their actions. For me, the relevance of impostorship became apparent when I recognised that, in my desire to ensure that everyone was participating equally in the research process, I was unwilling to accept a stewardship role and take responsibility for guiding the process.

In my eagerness to create an environment in which we worked together, I failed to understand that this is an emergent process. For example, Wadsworth & Epstein (1998) comment that a researcher should be comfortable with silence so as to allow for more in-depth communication. This encourages what they term as the "aha" (p.378) process through which the implications of what has been said are realised. In trying to create this same sort of reflective environment during the initial phase of the project, instead of 'aha' feelings, we more commonly experienced an 'aargh' process while we all waited for the other to say something. Instead of the creation of a reflective environment this was interpreted as non-participation, with one of the participants asking why I was not forthcoming with information.

This comment helped to clarify that a stewardship role does require leadership; those who hold such a role should share their knowledge openly even if this does appear to create an initial imbalance of power (Waters–Adams, 1994). Not until this knowledge is shared can participation truly begin. As the research process was an emergent one, over time the balance of power shifted between us depending on who had the expert knowledge during each phase. For example, when the clinical data was being reviewed, each participant took on a stewardship role in their area of expertise by leading the discussions. Through their sharing of expertise and knowledge a learning environment was created.

Feelings of impostorship lessened with the recognition that the stewardship role is not a permanent one, but that it may be necessary to guide participants through the stages of the participatory action research spiral by taking a leadership role at times.

Cultural suicide

The second change emotion described by Brookfield (1993) is one of cultural suicide. This emotion occurs when talking about the experience of change and reflecting critically on the results leads to alienation from colleagues and the organisational culture. This was experienced in this project during the debate surrounding the introduction of computerisation. The stance taken by the Centre members created tension with the clinicians who did not wish to see an automated process implemented. The justification for our position was totally alien to some of the participants in the fractured ankle project.

This source of tension was heightened by the fact that this was the first time the Centre members' views had been directly challenged by participants; there may have been less tension had we been further on in the project. Unfortunately, just as we were beginning to establish a collaborative relationship we were seen to be taking a non-negotiable position because, if computerisation had not been permitted, we would have withdrawn our services from the area.

Loss of innocence

Loss of innocence is Brookfield's (1993) third theme. This phrase is used to explain the common saying that the more we think we know the less we know. As there is no ultimate answer or truth, the ambiguity of change brings an element of grief into participants' lives. Brookfield argues that those who are seeking to introduce change frequently overlook this aspect. It is necessary to acknowledge that there is a degree of sadness in letting go of past experiences before moving on to new possibilities.

This sense of grief took a slightly different form in this project when discussions on the clinical data that highlighted unnecessary practices or gaps in the provision of patient care were discussed. Expressions of disbelief, frustration or anger were aired. In essence, the loss of innocence resulted from the uncovering of new information that challenged some widely held beliefs and promoted a realisation that change was necessary.

Road running

The fourth theme associated with the process of change is road running, which has close links to the loss of innocence. Brookfield (1993) describes this process as halting, jagged and incremental in nature, rather than rapid and complete. A rhythm of learning emerges as the incremental pace increases the opportunities to take an alternative perspective, resulting in an increasing tolerance for ambiguity. Brookfield claims that regression can be interpreted as having a devastating effect on the process, rather than being seen as an inconvenient interlude. During this project, other participants appreciated this factor of change more than I did. Their foresight enabled them to see that an inconvenience, such as not having computers, meant not stopping the process but rather living with this ambiguity while continuing to advocate the need for automation in ways that could be appreciated by clinicians.

The weekly review of our progress and performance also helped to keep the change process in perspective. While each meeting was judged on its own merits, a growing level of acceptance of the need to go back over certain issues emerged. Initially, reiteration was seen as 'holding up progress' and the pace and outcome of the meetings was described as 'adequate'. However, as the meetings progressed and the content for discussion grew, and as new ideas were generated, the process of reiteration became less contentious.

Community

Brookfield (1993) concludes with the theme of community, which is the reason why the cognitive and emotional aspects of critical thinking survive. By sharing experiences with supportive colleagues, the ability to tolerate confusion, criticism and incremental progress is sustained.

Throughout this project, a wide range of thoughtful gestures accompanied the discussion of these experiences. These have included, in spite of severe overcrowding, the provision of office space, as well as a mailbox for the Centre members in the Orthopaedic Service, as well as the exchange of cakes and formal thank-you letters. These actions have visually demonstrated a feeling of support that takes this sense of community beyond an exchange of words.

From a personal perspective, this sense of community has been widened while I have been undertaking this thesis. Support has not only been forthcoming

from the participants and the Centre's members, but also guidance and encouragement from my thesis supervisor, Judith Christensen, and family and friends have collectively contributed to my keeping a realistic outlook on life.

WHAT OF THE FUTURE?

The CIS models for fractured ankle and fractured neck of femur patients have currently been in use for six months. During this time a number of minor programming design changes have occurred. The major changes have centred on expanding the CIS models' capabilities. For example, handheld computers are being piloted on ward rounds. A patient questionnaire on the usefulness of the patient care maps and feedback sheet is also in use. Negotiations are currently under way to have the new systems independently audited within the next six months.

The team is continuing to meet weekly with an emphasis on enhancing the use of the CIS models in the Outpatients Department and community services, and with a view to introducing nurse-run clinics. However, my role has become an increasingly custodial and mentoring one, as the stewardship role is in the process of being transferred to a staff nurse nominated by the participants to lead the implementation phase.

Two national hospitals have expressed interest in using a CIS model, and negotiations on copyright issues are currently in progress. Two projects using the model are now currently under way in Auckland Healthcare; one within a mental health community setting and the other in a women's health in-hospital environment.

SUMMARY

McTaggart's framework for evaluating the effectiveness of using a participatory action research approach to introduce change has highlighted the positive aspects and difficulties that have emerged during this project. The continual commitment to evaluating and monitoring the effectiveness of our teamwork has allowed us to implement new strategies to improve participation and resolve issues associated with the proposed changes when the need has arisen.

Reflecting on Brookfield's themes that describe how people react during a change process has provided further personal insight into the emotional impact associated with proposed change.

As the developmental phase of this project moves into the implementation and evaluation phases for the two CIS models within the Orthopaedic Service, the perceived advantages of using a CIS model to improve patient outcomes has been acknowledged by other services who have expressed a desire to develop and trial a CIS model within their own area. The diversity of these settings and the unique needs of these patient populations provides an unique opportunity and challenge for the Centre members to test the robustness of a CIS model and uncover new ideas as to how patient care can be improved.

Chapter Six

CONCLUSION

It's hard to guess
how one thing on another
works an influence.
We pass –
And lit briefly by one
Anothers light
Think the way we go is right.
Jenny Bornholdt (1991).

INTRODUCTION

The results and impressions of this case study would have been best interpreted from multiple perspectives. Instead, the thesis has been written from my own perception of events, and the viewpoints described may not reflect those of the other participants. Therefore, these concluding remarks are a personal reflection of the overall process, and the limitations and benefits of developing a CIS model to improve patient outcomes.

OVERVIEW

Tim Porter O'Grady (1999) speaking on the health services for the future states that "*there is simply no way that the complexities of care and service can be well integrated without an entirely different infrastructure for it and leadership of it*" (p.42). At the beginning of this thesis it was claimed that clinicians are often unwilling to change the current practices associated with patient care management because of an implicit belief that their health care actions naturally generate effective patient outcomes. This assumption is reiterated daily in clinical practice as traditional patterns of patient care management continue. The process used to examine current practices of care for patients with a fractured ankle has seen the emergence of an entirely different infrastructure for managing patient care and leadership style. During this process it has been emphasised that effective patient care takes place within a continuum in which evidence based practice, clinical redesign, and patient outcomes are integrated with a participatory action research approach. While each of these concepts are

no longer new healthcare management strategies, the way in which they have been integrated into a single framework represents a new approach. The emergent generic CIS model may be of help to others considering implementing a similar strategy of patient care management.

The opportunity to continue the development, implementation and evaluation of the generic CIS model within a clinical environment by developing a model for a specific group of patients, as recorded in this thesis, has given us a greater insight into, and experience with, the practical implications of developing this approach to patient care.

The introduction of a CIS model into the Orthopaedic Service resulted in a transformational rather than an incremental change. The speed of this change was prompted by asking the questions: What is the source of the evidence that guides our care? Where are the documented rationales for the decisions and actions associated with the delivery of our care? What are the short and long term effects of our care? What methods do we use when working together as clinicians to show that effective patient care is being provided?

Underpinning this change process has been a participatory action research approach, which has sought to bring together different viewpoints and expertise to solve complex problems. As each participant has contributed their knowledge of and their insights into, patient care management, a greater appreciation and understanding of the unique skills required by each profession to deliver effective patient care have been gained. This growing understanding has involved resisting the temptation to consolidate these professional roles and skills and instead to focus on meeting the patients' needs. Consequently, professional knowledge, skills and responsibilities are now shared across professional disciplines resulting in a move from a multidisciplinary to an interdisciplinary perspective for managing patient care.

The prerequisite for making any change is the acknowledgement that change is needed. Associated with this factor is a willingness to keep an 'open mind' as to what form and direction change should take. In this project a learning environment has been created, resulting in the introduction of innovative ideas that have the potential to enhance outcomes for patients.

As part of this process we have reviewed the current system of patient care. This review used a variety of research methodologies because of the complexity involved in delivering clinical care. A triangulation approach was used to help understand the interrelationship between the decisions being made, the care being delivered and the final outcome for the patient. The design decisions for taking a clinical snapshot were influenced by the need for scientific robustness but also the context-specific requirements, particularly with the need to widely promulgate and negotiate the direction, content and process of the research approach.

The results of the clinical snapshot highlighted areas for improvement as well as areas of good practice. The changes recommended are intended to ensure that there is a closer cohesiveness between meeting the patients' needs and the clinicians' ability to deliver this care. However, recognition of good practice, which is frequently undervalued, ignored or unrecognised, was also made explicit during this process.

This approach has not been without risk and criticism as we have challenged each other, and sometimes maintained our own personal biases on some of the strategies that have been implemented. Nevertheless, we have retained a tolerance and a belief that individual opinions can change as future patient trends are analysed using the latest outcome data that is now readily available to all clinicians and patients.

LIMITATIONS AND BENEFITS

Evaluating the success of developing the CIS model for patients with a fractured ankle is rather difficult because of the participants' prior working relationship with each other and their openness in looking for new avenues of patient care management. The influence and contribution of the experiences gained during the fractured neck of femur project have only been briefly alluded to in this thesis, but undoubtedly these earlier experiences have contributed to the success of this study. This was clearly evident in how easily the concepts of a generic CIS model were understood and accepted by the participants and clinicians working in the department in the early phase of developing the CIS model for patients with fractured ankles. For example, the six-month time frame

for developing the CIS model for fractured ankle patients was met, whereas the developmental phase of the fractured neck of femur project took fifteen months. Consequently, this particular set of circumstances makes it difficult to predict whether the development of a CIS model will have as much success in another clinical area.

Financial limitations and benefits

Our original intention to determine the cost of developing a CIS model had to be abandoned. Although we could determine the financial expenditure, such as photocopying, breakfasts and computer hardware at the individual service level, we did not record the Centre members' time and input into this project. An attempt to extract these details from the other projects, which were of a different nature, that we were simultaneously involved in while carrying out this project, proved to be too difficult. With the assistance of an accountant a logbook has now been compiled and our intention is to record our work activities and hours according to each project we undertake. Although this will not give us an accurate indication as to the original cost of establishing a CIS model, it will allow us to track and measure the financial extent of involvement by the Centre members in this approach to patient care management.

However, the advantage of taking a clinical snapshot is that we have been able to identify at the individual patient level clinical costs associated with care delivery. This has meant fundamental questions around the relevance of delivering certain aspects of care have been asked. We have been able to eliminate a large number of 'routine' tests, which had been based on traditional practices and have demonstrated cost savings. More importantly, it has reduced unnecessary and often uncomfortable procedures for patients. An expenditure format, which focuses on the direct costs associated with care delivery and indirect costs for the patient, such as theatre delays, is now being devised with the assistance of the corporate financial service and will be incorporated as a component of the generic CIS model.

Thesis

It has been difficult to accurately describe and convey in this thesis the depth of discussions that took place and the differences and commonalities that have emerged. Lack of previous experience with using a participatory action

approach resulted in role confusion as I attempted to balance the demands of active participator and researcher, and this was compounded by the need to meet the academic requirements for completing a thesis. By combining my daily working experiences with the topic for this thesis the opportunity to carry out more in depth research has led to deeper critically thinking and reflection as to the strategic direction CIS models will take in the future. However, the same degree of research intensity associated with the activity of writing a thesis, is unlikely to continue in future projects. Whether the completion of the requirements for this thesis will result in a different view of CIS models in future projects is uncertain. However, my intention is to build on this experience, incorporating some of the academic skills, such as literature searching and reviewing into my future work activities, as well as the experience of working with the participatory action research cycle with a group of clinicians.

The writing of this thesis has also been difficult because the written format is not suitable to demonstrate how the CIS model works. It is not until the user actually visualises the model on the computer and has hand on experience that the interconnections between the concepts of the CIS model and how they work becomes clearer. In hindsight I would have liked to have presented the thesis in both written and interactive formats.

A personal bias, which supports the use of a generic CIS model for patient care management, has been reinforced as we have continued to work in the Orthopaedic Service since the completion of this thesis. Although a group analysis of patients with a fractured ankle has not been undertaken, as there have been too few admissions to date, the initial results from patients with a fractured neck of femur have shown significant changes in patient care management. These have included: positive feedback from clinicians regarding the ease with which they can access evidence based material; comments from medical and nursing staff that there has been an improvement in patient care; a reduced length of stay by two days; and the identification of major post operative complications.

FUTURE STUDIES

A clear understanding as to what is meant by patient participation remains unsolved. Indeed, as we continue to review the literature and interview patients on the wards, the questions as to whether patients wish to participate and if so to what extent, and how is this participation manifested have arisen (Biley, 1992; Cahill, 1996). In particular, our focus is on the factors which influence patients expectations (Kravitz, et al., 1996) and the ways in which we can negotiate and meet these exceptions (Zander, 1996) for every patient.

Having developed and commenced the implementation of the fractured ankle and neck of femur CIS models, questions remain as to how to resolve undesirable variances. What is emerging is the need to use a variety of methodologies in order to have a more in-depth understanding of the major variances and their impact on patient outcomes. The overall strategy for guiding this process is a participatory action research approach, with new teams of clinicians being established to focus on resolving specific variances.

As McTaggart (1994) predicted, the implications of a participatory action research approach, such as the fractured ankle project, have spread beyond the immediate environment, with the participatory nature of the project influencing colleagues working within and outside A+. For example, as participants in the fractured ankle project our custodial role during this process provided us with opportunities to enhance the exchange of information with the immediate group of participants and our colleagues in other clinical environments and a corporate setting. This has meant that our colleagues' opinions, concerns and suggestions have influenced the strategic direction for future projects. This wider input has also directly contributed to enhancing the design of a generic CIS model, and they have reaffirmed the Centre members' commitment to using a participatory action research approach to develop and implement CIS models in the future.

CONCLUSION

The members of the Centre are now working with clinicians on the evaluation stage of this project. Our intention is to continue to work with specific groups of clinicians and patients in developing, implementing and evaluating the

effectiveness of care delivery using a generic CIS model within A+. The acronym used in this thesis; **Clinicians Health Actions Naturally Generate Effectiveness?**, continues to be our daily focus as we remain committed to changing ineffective clinical practices and seeking new ways with clinicians and patients whereby we can improve patient care.

- Appendix One - GLOSSARY

INTRODUCTION

Global trends in patient care delivery have seen the rapid development of new philosophies on patient care management. Unfortunately, confusion has arisen as individual health care environments seek to adapt these concepts for their own use and in many circumstances copyright these terms.

To help clarify the meanings or interpretations of these initiatives we are developing an evolving glossary of terms. We have endeavoured where every possible to define these terms according to the source or originator of the concept. We have indicated any original work with a * beside the author's name. These articles are available on request from the Centre.

Please contact us if you would like further clarification or to debate any of the descriptions used by the A+ Network Centre for Best Patient Outcomes.

GLOSSARY

Critical pathways: are clinical management tools that organise, sequence and time the major interventions of nursing staff, physicians and other departments for a particular type, subset, or condition. Critical pathways describe a standard of practice (Zander, 1992) *

CareMaps: are a more elaborate critical pathways in that they reflect the patient's and/ or family's baseline responses expected by the staff as a result of their interventions as those interventions... Because CareMaps show the relationship of sets of interventions to sets of immediate outcomes along a time line, they are superior to critical paths. In other words, CareMaps merge standards of care with standards of practice in a cause and effect relationship across time. (Zander, 1992)*

Clinician: term to encompass all persons who are involved in delivering and /or managing care within a hospital and /or community setting.

Clinically Integrated System (CIS) : Term used by the Centre to denote the linking of evidence- based practice, clinical redesign and outcomes management together using the principles of participatory action research.

Clinical practice guidelines: Systematic developed statements to assist practitioner and patient decisions about appropriate health care for specific circumstances. (Field & Lohr, 1992)

Clinical Practice: includes all aspects of patient care, hospital and community services and the associated work practices of all clinicians.

Clinical Snapshot: A process that looks at current care delivery practices by tracking the progression, interventions and outcomes of a target population for a specified period of time.

Clinical Systems: a field of management, systems/ technology, and the use of information as related to the delivery of care and the management of health. The common denominator throughout clinical information systems is the patient - a commonly used term regardless of the wellness or illness state of the individual (Healthcare Information Management Systems Society : 1996)

Clinical Value Compass: " The clinical value compass, named to reflect its similarity in layout to a directional compass, has at its four cardinal points (1) functional status, risk status, and well being; (2) costs; (3) satisfaction with health care and perceived benefit; and (4) clinical outcomes. To manage and improve the value of health care services, providers will need to measure the value of care for similar patient populations, analyse the internal delivery processes, run tests of changed delivery processes and determine if these changes lead to better outcomes and lower costs" (Nelson, Mohr, Batalden, & Plume, 1996).

DRG: stands for Diagnostic Related Group.

Evidence based practice: Is the application of the best available empirical evidence, including recent research findings to clinical practice in order to aid clinical decision making. (Taylor-Piliae, 1998).

Interdisciplinary team: " a willingness to share and indeed give up exclusive claims to specialised knowledge and authority, if the needs of clients can be met more effectively by other professional groups".(Carrier & Kendall, 1995).*

Multidisciplinary team: " A co operative enterprise in which traditional forms and divisions of professional knowledge are retained" (Carrier & Kendall, 1995)*

Outcome: is the by- product of a specific process (Wojner, 1996)

Outcome measurement systems " Set a priori of standards of care and drive services to conform to those standards" (Bologna, N.C. & Feldman, M.J. 1995)*

Outcome Management: is the enhancement of physiology and psychosocial patient outcomes through the development and implementation of exemplary health practices and services, as driven by outcomes assessment. (Wojner, 1996).

Protocol: A comprehensive set of rigid criteria outlining the management steps for a single condition or aspects of organisation.(Baker & Fraser 1995).

Participatory Action Research :“is a methodology in which researchers and members of a social system collaborate in a process of data – guided problem solving for the dual purpose of (a) improving the system’s ability to provide members with desired outcomes and (b) contributing to general scientific knowledge. This is accomplished through: (1) enhancing the system’s ability to take action to meet identified needs; (2) improving its ability to use data to guide actions and contribute to a body of knowledge; (3) increasing its capacity to learn from experience; and (4) decreasing the power inequities amongst system members”. (Schurman & Israel, 1995)*

Redesign :A fundamental rethinking and radical redesign of processes to bring about dramatic improvements in care and cost of care management

Review Criteria: Systematically developed statements, which can be used to assess the appropriateness of specific healthcare decisions, services and outcomes. (Field & Lohr, 1992)

Standard: The percentage of events that comply with the criterion. (Baker & Fraser, 1992).

Treatment Redesign: Changes in the specific interventions and treatment techniques that comprise the client’s full episode of care: the initial interview, the therapy and the medications. (Bologna, N.C. & Feldman, M.J. 1995)*

Triangulation: is the combination of two or more theories, data sources or methods or investigations in one study of a single phenomenon (Denzin, 1989, as cited in Shih 1998)

Variance: " Variance is a deviation from the expected patient / family intermediate goals, outcomes, and staff interventions outlined on the Critical Path/ CareMap which may alter the anticipated discharge date, the expected or the expected outcomes:" (Zander, 1992).*

-Appendix Two -

GROUND RULES

Principles Underpinning the Success of the CIS Model for Patients who have Fractured Ankles.

To achieve our goal of improving patient care delivery we recognise and acknowledge the need to work together to achieve the best possible outcome for the patient and their families. Our meetings are an integral part of this process and we are committed to:

- 1) Listening and respecting each other's opinions and when appropriate adhering to the principles of confidentiality and professional autonomy.



- 2) Ensuring that our peers are given the opportunity to participate in this process.



- 3) Arriving on time for meetings.



- 4) Contributing to discussions and sharing the workload as necessary.



- 5) Sending in apologies if unable to attend.



- 6) Endeavouring to attend all meetings or ensuring that a peer will represent your profession at these meetings.



- 7) Working together to find acceptable solutions.



- 8) Allowing the freedom to withdraw from the team at any time and recognising that individual contributions to date will be acknowledged, but co authorship on any future publications/ presentations is not guaranteed.



8) Having the right to withdraw from the participation of Annie's thesis at any time, without any consequence to the individual concerned.



- Appendix Three - INFORMATION AND CONSENT FORM

INFORMATION SHEET

My name is Annie Fogarty and I am the Co-ordinator for the A+ Network Centre for Best Patient Outcomes. I have been participating with an Interdisciplinary Team in the Orthopaedic Department at Auckland Hospital with the development and implementation of a clinical integrated system (CIS) for patients who have suffered a fracture neck of femur.

Senior clinicians have asked that I participate in the development and implementation of a CIS for patients who have suffered a fractured ankle using the same organisation framework that has been used for the fractured neck of femur patients.

I am currently doing my Masters at Massey University. As part of my course requirements I need to carry out a research study. I am therefore asking you to consider allowing me to use the CIS study for fractured ankle patients as my research study.

I have enclosed below an outline of my intentions for your consideration.

If you agree to this proposal, you will be asked to sign an informed consent form at a later date.

Thank -you for your consideration this proposal.

Research Title: C.H.A.N.G.E ?

Clinicians Health Actions Naturally Generate Effectiveness?.

1) Purpose: You are being invited to participate in a research study in which you will be participating as a team member in the development of a Clinical Integrated Systems Model for Patients who have suffered a fractured ankle. The reason the researcher is conducting this study is gain an understanding as to how the team develops a clinical integrated system and to describe how this experience impacts on care delivery.

2) Procedure: The study will be conducted over a six-month period. The team will meet for an hour on a weekly basis during this period. The methodology for the study is Participatory Action Research. This means that :

- 1) We work together as a research team to identify aspects of the system that need to change.
- 2) We discuss our assumptions then collect and interpret the data against these assumptions.
- 3) We use our research findings to develop and implement interventions.
- 6) We create a plan to monitor and evaluate the effectiveness of the implemented interventions.

We will share our experience with interested parties in the hope that our contribution of knowledge, to a wider audience, may be of benefit to those who may wish to develop a clinical integrated system using the same methodology as this team has.

Although this study is a participatory one, the researcher is asking for your permission to conduct this study as part of her thesis requirements. The thesis will be written from her perspective. The issues that she will be describing are;

- 1) How have things changed?
- 2) What is not going to change and why?
- 3) What things have been confirmed during this process?
- 4) What elements have been researched and why not?
- 5) What lessons have been learnt during this process?
- 6) Are the CIS model and PAR process complementary?

As part of this process the researcher would like to tape the meetings. These tapes will not be transcribed in full. The intention is to use the tapes for my own purpose is to help accurately

describe the process by including any comments, suggestions or questions that I consider relevant to the change process. No comments, suggestions or questions from these tapes made by any individual will be included in the thesis, without the individual's consent. These tapes will only be available to myself and possibly my supervisor, unless specifically agreed to by all participants. The tapes will be kept in a locked cabinet, with the researcher being the only person able to access the tapes. At the completion of the study the researcher will destroy the tapes.

If all participants consent to the use of audiotaping, at anyone's request the tape recorder may be turned off any time during the meeting.

3) *Anonymity and Confidentiality:* Any team member can access any written material related to the CIS model development kept by myself at any time. This material will not reveal any individual profession or individual identification as each member will be given a pseudonym known only to the researcher and the individual concerned.

Any comments, suggestions or questions from the participants will not be used in the thesis without the expressed permission of the individual concerned and a pseudonym will be used in the writing up of the thesis. No professional identity will be used in the writing up of the thesis.

It is acknowledged that this process is a participatory one. As a consequence, all participants will have the opportunity to review the final draft of the thesis and remove any data that they believe threatens the anonymity and confidentiality of any individual or profession.

4) *Participation is voluntary:* Your participation in this study is voluntary.

5) *Participant's right to decline:* All participants have the right to decline to take part in the thesis study at any time. If a participant wishes to withdraw their consent from the participation of the thesis, they are free to do so and can remain a member of the group. Any specific comment, question or suggestion that is directly attributed to the individual that has been part of the researcher's data will be removed from the thesis in accordance with individual's wishes.

6) *Risks:* There are no anticipated physical risks involved by participating in this study. As this is a change process feelings of stress / emotional discomfort or tension can occur. It is anticipated that as the participatory action process of assessing, planning, action and evaluation are undertaken individual concerns can be resolved by gathering data that confirms or refutes these concerns.

The Occupational Health Team who has expertise in change management has also offered their services to anyone who may wish to discuss their concerns on a confidential base. There is no cost to the individual if they wish to utilise this Service.

7) *Benefits:* There is no direct benefit to you for participating in this study. However, it is anticipated that the results of the study may help patients and clinicians gain greater understanding of how to improve current management for patients who have suffered a fractured ankle.

8) *Uses of the Information:* The information collected by the researcher will be used for as her thesis topic for a Master of Arts. On completion of the study a copy of the thesis will be given to the Orthopaedic Service. The possibility of future publication or presentation of research findings following the completion of the thesis will be discussed with the team. No publications or presentations of research findings will be undertaken without prior consent from the team.

The Supervisor of this Study is ;

Dr Judith Christensen,
Associate Professor
School of Health Sciences
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I can be contacted at:

Work: A+ Network Centre for Best Patient Outcomes,
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Consent Form

C.H.A.N.G.E.?

Clinicians Health Actions Naturally Generate Effectiveness?

In signing this document, I have read the information sheet and have had the details of the study explained to me. I have been given the opportunity to discuss this study and my questions have been answered to my satisfaction.

I understand that as this study involves my active participation further questions will arise during this process and I am free to ask further questions and seek clarification of any concerns at any time.

I understand I have the right to withdraw from the study at any time and that this decision will be without consequence.

I understand that if I agree to provide information to the researcher a pseudonym will be used to protect my identity and profession.

I agree / do not agree to having the weekly meetings taped. If the tapes are turned off, the meeting will continue.

I also understand that I have the right to ask for the tape to be turned off at any time during the discussion.

I understand that the study has the approval of the Massey University Human Ethics Committee, the A+ Research Centre and the General Manager of Planning and Development.

I agree to participate in the study under the terms set out in the information sheet.

Signed:

Name: **Date:**

Name of Researcher: Annie Fogarty

Dr Judith Christensen (Research Supervisor) phone 00 64 0 4439700

(direct line)

Contact number: Annie Fogarty, phone 638 -9909 ext 3422.

-Appendix Four -
DATA COLLECTION TOOL

#ANKLE CIS MODEL : Snapshot of Current Practice

Patient sticky label

Criteria for the inclusion of patients for CIS study

Definition: Fractures involving the malleolus or malleoli of the ankle.

Rarely will there be a proximal fibula fracture with a ligamentous injury. The main causes of injury are usually indirect as a result of a twisting or fall. The injury is usually of low velocity.

Exclusion Criteria.

1) Fractures of the talus and calcaneus are excluded (except minor ligamentous avulsions from the talus).

2) Pilon fractures are also excluded. These are generally high velocity injuries involving the distal tibias. They extend into the ankle joint but usually involve more of the joint than the malleoli.

3) Patients with a co existing injury. We are initially restricting our study to patients who have a single injury so we can clearly identify what factors influence patient outcomes and recovery patterns for this group.

Date admitted _____

Time admitted _____

Ethnic Origin _____

Cause of accident -Please state:

a) mechanism (e.g. fall, twisting, inversion injury)

b) Site

Home

Work

Sport

Street/Shop

Other (state)

Medical History (please circle or specify)

Endocrine Osteoporosis Diabetes Other _____

Psychiatric Depression Anxiety Other _____

Vascular Hypertension PVD Other _____

Digestive Constipation Ulcer Other _____

Cardiac IHD CHF Other _____

Respiratory Asthma CORD Other _____

Other _____

Previous #'s _____

Head injury yes/ no Sporting injuries

Usual Accommodation (please circle)

1. House
2. Granny Flat
3. Resthome
4. Boarding House
5. Private Hospital
6. Caravan
7. Renting

Usual Care Situation

1. Non-relatives
2. Alone
3. Spouse/partner only
4. Relatives (no spouse/partner)
5. Unable to determine
6. Flatmates
7. Other

Support Systems

1. District Nurse
2. Meals on Wheels
3. Day care
4. Home help
5. Other
6. None
7. Not appropriate

Area patient was admitted from

1. Northshore
2. West Auckland
3. Central Auckland (HSE central)
4. Central Auckland (HSE Waitakere)
5. South Auckland
6. Out of Auckland

Mental Status (Please circle)

1. Completely disorientated to time & place
2. Frequently confused and/or disorientated
3. Confused at times
4. Alert & Orientated

EMERGENCY DEPARTMENT

Date and time of injury _____

Were the family/friend present Yes No

If not present were the family/friend notified Yes No

How long after arrival did the patient case become orthopaedic _____

How long after referral did the orthopaedic Dr arrive: _____

Was the case a direct referral to orthopaedics Yes No

Was the transit time through ED/AAW: _____

Were there delays (>2 hours)

___ Medical (Dr)
 ___ System (please specify) _____
 ___ Other (please specify) _____

Prior to admission:

Did the patient have Pain Relief	Yes	No	n/a
Were X-rays taken	Yes	No	n/a
Was the GP contacted within 24 hrs of admission	Yes	No	N/A

Was the private hospital (other agency) contacted within 24 hrs of admission	Yes	No	N/A
--	-----	----	-----

Classification of the ankle fracture: please record that information was documented in the notes. For areas of missing information please highlight these areas and ask the house surgeon or registrar for this data.

- 21) Lateral malleous
- 22) Medial malleous
- 23) Bimalleolar
- 24) Trimalleolar
- 25) Maissonneuve

- 26) Weber A
- 27) Weber B
- 28) Weber C

- 29) Diastasis present
- 30) Diastasis absent

- 31) closed/simple
- 32) open/compound

- 33) not dislocated
- 34) dislocated

- 35) isolated injury
- 36) associated injury

Physical Examination

Was the swelling

- a) minor b) moderate c) severe d) not recorded

Urine MC&S										
Sputum MC&S										
Blood bank tests										
Blood cultures										
Wound swabs										
Other microbiology										
ECG										
CXR (supine)										
X-ray (AP pelvis)										
X-ray(lat hip)										
X-ray (other)										
CT										
MRI										
Bone scan										
Other										

Who was the Anaesthetist

Consultant _____ (code)

Senior Registrar _____ (code)

Junior Registrar _____ (code)

Operation: fibula plate

Diastasis screw

Malleolar screw

Other: please state

Type of prosthesis:

___ Moonboot

___ Cast

Type of wound closure:

___ Sutures

___ Dissolvable sutures

___ Staples

___ Other (please specify) _____

CLINICAL INTERVENTIONS

Leur inserted day:

Leur removed day:

Rediavc removed day: N/A

Suture/Staples removed day:

Dressing down (for 1st time) day:

On full diet by day:

O2 therapy discontinued by day: N/A

BD observations by day:

Daily observations by day:

Day mobilised (partial weight bearing)

Full weight bearing day/week (circle and state):

Urinary catheter removed day: n/a

Urinary catheter inserted day: n/a

Epidural given: no:

MEDICATIONS

Were opiates prescribed within 6 hrs of admission?

Were non opiates prescribed within 6 hrs of admission?

What day did the opiates stop?

What day did the non opiates stop?

How many doses of antibiotics did the patient have?

What day did the antibiotics stop?

Did the patient get antiemetics?

Did the patient have regular antiemetics charted?

Did the patient vomit?

What day did the antiemetics stop?

Please list any medications that the patient is currently taking

Please list any medication changes that were made when the patient was discharged from the ward.

Final discharge destination:

1. Home alone
2. Home not alone
3. Relatives home
4. Resthomes
5. Private hospital
6. Out of region (state) _____

Transfer to Assessment and Rehabilitation Ward

1. Waitakere
2. Auckland Hospital
3. Northshore Hospital
4. Middlemore Hospital

6 week follow up in clinic **yes** **no**

Discharge date from ward:

Discharge date from rehabilitation:

Outpatient appointment date:

Removal of sutures:

Change cast:

How many outpatients appointments were made ?

Why where these made?

Did the patient DNA for any of these appointments

Where was the pt final discharge to (e.g back to GP)

Complications: please chart any complications that required treatment during the patient stay.

If you can find any of the above information can you please state the reason e.g. not recorded.

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