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99D007I
JYB-3306-50

Report Submitted to:

Professors Joel J. Brattin and Peter R. Christopher

London, Project Centre

By

Kevin Boyd — Kevin Boyd

Marc McKenney — Marc McKenney

Maureen Upton — Maureen Upton

In Co-operation With

Mrs. Marietta Clegg, Quality Assurance Manager

Royal Hospital for Neuro-disability

Assessment of Patient Satisfaction

5 March 1999

This project report is submitted in partial fulfilment of the degree requirements of Worcester Polytechnic Institute. The views and opinions expressed herein are those of the authors and do not necessarily reflect the positions or opinions of the Royal Hospital for Neuro-disability or Worcester Polytechnic Institute.

This report is the product of an education program, and is intended to serve as partial documentation for the evaluation of academic achievement. The report should not be construed as a working document by the reader.

5 March 1999

Mrs. Marietta Clegg, Quality Assurance Manager
Royal Hospital for Neuro-disability
West Hill
East Putney
London SW15 3SW

Dear Mrs. Clegg,

Enclosed is our report entitled Assessment of Patient Satisfaction. The project was implemented at the Royal Hospital while background research and planning was conducted at WPI, Worcester, Massachusetts. Copies of this report are being submitted simultaneously to professors Joel J. Brattin and Peter R. Christopher for evaluation. Upon faculty review, the original will be catalogued in the Gordon Library of Worcester Polytechnic Institute. We greatly appreciate all of the guidance you and Mrs. Marie Waters have given us during the project and we will never forget the time we spent at the Royal Hospital for Neuro-disability.

Sincerely,

Kevin Boyd
Marc McKenney
Maureen Upton

Abstract

This project evaluates the level of patient satisfaction at the Royal Hospital for Neuro-disability, targeting quality of life issues that arise in healthcare literature through the use of a quantitative survey and qualitative in-depth interviews. A key aspect of research and implementation in the study was utilising augmentative communication tools for neurologically disabled patients. The study reveals strengths in the hospital's staff and overall atmosphere and weaknesses in the activities, wheelchair repair, and the scheduling of meals.

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    Primary author: Maureen Upton
    Primary editors: Marc McKenney, Kevin Boyd

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    Primary author: Marc McKenney
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    Primary author: Maureen Upton
    Primary editors: Kevin Boyd, Marc McKenney

Methodology
    Primary authors: Marc McKenney, Maureen Upton
    Primary editors: Kevin Boyd

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    Primary authors: Kevin Boyd, Marc McKenney, Maureen Upton
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    Primary author: Maureen Upton
    Primary editors: Kevin Boyd, Marc McKenney
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Executive Summary

The Royal Hospital for Neuro-disability treats people with various neurological disorders and brain injuries. The hospital is working in conjunction with WPI to determine what areas of the hospital need improvement concerning quality of life. The project team developed a patient satisfaction survey, which targeted specific dimensions of care to determine areas of strength and weakness at the hospital. In order to sample the hospital's patient population, the project team divided the patients into three communication groups. The first group includes patients who can communicate verbally. The second group includes those patients who have a limited level of communication and use alternative means of communication such as blinking an eye, motioning to letter boards, and utilising voice boxes. Patients who cannot communicate sufficiently to participate in the survey make up the third communication group. For these patients, we surveyed their family members in order to gain perceptions of quality care. In addition to the surveys, the project team held a number of in-depth interviews with both patients and family members. The project team analysed all of the results based on the entire population and as separate communication groups.

The results of the survey pointed out a few areas of strength as well as some areas that need improvement. Generally patients feel that the staff is doing an excellent job and that the hospital's atmosphere is a pleasant one. However, in terms of weaknesses, some patients stated that they feel confined to their rooms. They also are concerned with the amount of time it takes for a wheelchair to be fixed. They also feel that the length of time between meals is a problem because lunch and supper are served too close together.

Additional staff or a restructuring of the staff's schedule could alleviate these problems. Increased communication among staff members will also help with the problems stated above. By taking a closer look into these areas of concern and implementing improvement procedures, the Royal Hospital for Neuro-disability's quality assurance department should see an increase in patient satisfaction.

Acknowledgements

During our time at the hospital we encountered a many people who helped us accomplish our goals. Without their assistance this project would not have been possible. They not only guided us during the project but they also made our experience enjoyable. Therefore we would like to offer special thanks to our liaison Mrs. Marietta Clegg, Mrs. Marie Waters, Mr. Tony Lyne, and all of the ward managers and sisters at the RHNd

We would also like to thank the faculty of Worcester Polytechnic Institute for their commitment to the success of this project especially our advisors Professors Joel J. Brattin and Peter R. Christopher, Professor Paul Davis, Mrs. Jennie Hawks, and Professor Wesley Jamison.

We give special thanks to Professor Robin Goldberg of Worcester State College for sharing her knowledge in communicating with the disabled with us.

Finally we would like to thank all of the patients at the Royal Hospital for Neuro-disability for their help and participation especially those who took part in a variety of additional activities during the course of our project: Meeta Vale, Ved Aggarwall, and Peter Gow.

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1.0 Introduction

The purpose of this project is to measure the level of client satisfaction at the Royal Hospital for Neuro-disability (RHNd). When a patient enters a hospital, he and his family have a set of expectations about quality care. The hospital's ability to meet these demands determines the level of patient satisfaction. By surveying the patients, the hospital's quality manager can identify common problematic areas and make improvements that will increase the quality of life at the hospital. This will therefore directly raise overall satisfaction. Our study focuses on areas that determine the overall quality of life for patients at the hospital.

Patients at the RHNd suffer from a variety of neurological disabilities including Huntington's disease, Parkinson's disease, Cerebral Palsy, Multiple Sclerosis, and serious brain injuries. Three quarters of the hospital is an in-patient facility where a majority of the patients have severe communication disorders. Some patients communicate only by blinking an eye or nodding the head while other patients live in a persistent vegetative state. The remaining quarter of the hospital runs on an outpatient basis. The amount of verbal communication for these patients is commonly greater than that of the patients who live at the hospital.

The difficulties the patients have communicating and adjusting to their illness often leads them to emotional frustration. With some patients we can easily see this frustration while we can see other patients trying to make the most of their situation. Both types of reactions could lead to a bias in the survey's results. It is therefore very important to realise the implications of these extreme emotional reactions when measuring patient satisfaction with quality of life. Furthermore the emotional strain is not limited to the patient himself. The patient's family and friends often suffer emotionally as well. To the patient and his family, living with a disability can be an overwhelming burden. To them perhaps nothing the hospital does could be enough to take away that pain. We have accounted for this bias in designing the patient satisfaction survey.

Not only is the actual survey design important when accounting for any emotional bias but also the survey implementation and analysis are critical. Only through proper techniques will a survey yield valuable results that are useful to the hospital staff. Quantitative surveys must be carefully designed through question development and sample selection to measure correctly the patients' perceptions. Using a stratified sampling technique, we have divide the hospital population based upon the patient's communication level into homogenous study groups, called strata. This technique has allowed for different interpretations of patient satisfaction for the varying communication levels.

Therefore, by implementing the described survey, we have obtained quantifiable results that the staff can use to make improvements in the quality of life at the hospital. From these results we have made suggestions and recommendations to the hospital's quality care department detailing the patients' perceptions of strengths and weaknesses within the hospital's procedures. The hospital is now able to implement changes addressing the specific problems identified in the study, thus improving client satisfaction.

From the results of our study, the hospital will gain an understanding of current patient concerns. Because we are independent of the hospital, the results are not skewed due to intersubjectivity bias that would be present had the hospital staff administered the survey themselves. The results will benefit the hospital by giving them concrete support to implement quality improvements.

In order to accomplish our goal of administering a reliable survey with minimal bias it was first necessary to develop an understanding of the overall hospital environment. In order to obtain the desired results we needed to gain an understanding of the British healthcare system, quality care definitions, and the different diseases treated at the hospital, as well as the components of a meaningful survey.

> This report was prepared by members of Worcester Polytechnic Institute London Project Centre. The relationship of the Centre to the Royal Hospital for Neuro-disability and the relevance of the topic to the Royal Hospital for Neuro-disability are presented in Appendix A.

2.0 Literature Review

The British Healthcare System

In order to understand the patients' level of satisfaction with the RHNd's services, we needed to learn about the system in which the hospital operates. British healthcare, known as the National Health Services (NHS), functions very differently from common healthcare systems in the United States. The system, funded solely by the British government, is based upon equal care to all subscribers. Under this plan any resident of Great Britain can receive the best available medical care regardless of financial obligations (Bates, 1983). Various governmental revenues pay for the operating and research costs while subscribers share charges only for products such as prescriptions and eyeglasses (Basch, 1990). Despite severe management and organisational problems, the system consistently receives high approval ratings because the general public has strong faith in centralised care (Bates, 1983).

The belief that low-income families should not be afraid to seek necessary medical attention was the driving force behind the creation of the NHS. Established in 1912, the National Health Insurance group provided limited medical benefits for those workers earning under one hundred sixty British pounds per year (Basch, 1990). However, the public soon realised that this system provided insufficient medical care to a limited group, which led Aneurin Bevan to create the NHS in 1948. He accomplished this by expanding the medical coverage provided by the National Health Insurance to the entire British population (Basch, 1990). However, the creation of the NHS did not lack controversy. The British Medical Association expressed strong concerns about a government-regulated medical system while the general public favoured the change (Aaron & Schwartz, 1984). During WWII, citizens and soldiers alike had grown accustomed to receiving free medical treatment for bomb injuries and therefore thought the progression to centralised medical care was a natural one. Advocates of government-controlled medical care utilised WWII propaganda to promote their views and win public favour (Aaron & Schwartz, 1984). A small percentage of private practices survived the birth of the NHS, but because these doctors charge for their services only the very wealthy can afford them (Bates 1983).

Initially, the public expressed satisfaction with the medical treatment the NHS provided. They appreciated the fact that the NHS controlled and standardised the size, location, and operations of hospitals. However, the system was not without outside scrutiny (Basch, 1990). Numerous councils and committees regulated the community and environment of health services, while management committees worked with the non-teaching hospitals, and regional boards focused on medical schools (Basch, 1990). All of these different managing bodies made the system seem fragmented and scattered. Since the average citizen, ignorant of medical procedures and policies, could serve on any of the management boards, problems ultimately developed (Bates, 1983). Identifying and understanding the true voice of the patient became extremely difficult because any board member could manipulate the system by directing funds to areas that suited his personal needs and not the needs of the British population (Bates, 1983). The Reorganisation Act of 1974 sought to unify and strengthen the structure of the NHS by creating ninety area health authorities (AHA) which effectively planned and provided the services for 250,000 to one million people (Klein, 1979; Basch, 1990).

However, dissatisfaction with the management of the NHS continued into the 1980s with citizens complaining that the system constantly needed money and expert management control (Basch, 1990). After the Reorganisation, the distributions of hospital resources under NHS control still mirrored the social class structure of British society. Equal access may have been the goal, but it was not the reality (Klein, 1979). These poorly allocated funds adversely affected the patient and therefore diminished quality. According to Klein (1979) in order for the NHS to achieve high quality and satisfaction levels, competition must exist with private practices. In the present system, the average patient is unable to afford private care and therefore has difficulty expressing his dissatisfaction with the NHS because he has no other viable option (Klein, 1979).

Apart from monetary and management problems, one of the most frequent complaints about the NHS is the long waiting lists for hospital admission (Basch, 1990). Under the NHS, a patient must first enrol with a general practitioner at a hospital or outpatient clinic before receiving specialised care (Aaron & Schwartz, 1984). In order for a patient to be placed on a waiting list for specialised care, he must first undergo a series of screening sessions and referrals from the general practitioner (Bates, 1983). According to Aaron & Schwartz (1990), one-third of the patients waited over three months for admission while six percent waited over a year. At the RHNd, patients must also wait for their medical funding to materialise before admission. This extended waiting period for people needing timely medical care is a consistent factor decreasing their overall satisfaction (Aaron & Schwartz, 1990).

The NHS evolved to provide timely and equal access to medical care for all citizens of Great Britain, independent of their financial status. With the changing policies and treatments of the medical world, equal access and free care are no longer the only medical needs of the British population. Throughout the 1970s the patient began taking a more active role in his medical treatment which forced the NHS to redefine its focus (Bates, 1983). In 1979 the NHS broadened its objective to include being responsive to the needs of the community by providing a range of high quality services and encouraging citizens to lead healthy lives (Royal Commission on the National Health Service, 1979).[1]

A further change in NHS policy that has directly affected the Royal Hospital for Neuro-disability is the Community Care Act (DOH 1990). One long term goal of this

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[1] Bates references this report but does not cite it explicitly.

legislation is to keep need based assessment and resources separate in healthcare in an effort to raise equality in the system. The act aims to meet the needs of the patient without initially worrying about financial arrangements. This, however, is not always possible. Today, the Social Services Departments must first assess the needs for the patient's social care as well as medical care before financing care at nursing homes and hospitals similar to the RHNd (CCSF/RCN 1993). The available resources, however, do not always meet the varied needs of the patients. Waiting for funding from the Social Services Department can be a long process for many patients at the RHNd.

These redefinitions of the NHS' principles mirrored a shift in medical philosophy. The patient was becoming more involved in treatment. His satisfaction with the NHS and the hospital became directly related to his definition of quality care.

The Patient and Quality of Care

In hospital management, "quality of care" is an elusive phrase. Depending on the group of people asked, its definition varies. The physicians, hospital staff, administrators, and patients often have different perceptions of what quality care actually entails (Fallowfield, 1990). According to Omachonu (1991) the patient's satisfaction with hospital care is directly related to his definition of quality of care, and it is this definition that is gaining wide attention in the medical world. The patient's voice is growing louder each year, but the factors which drive the voice remain dynamic (Fallowfield, 1990; Omachonu, 1991). Assessing the level of client satisfaction for any institution, let alone the RHNd, involves an understanding of the factors contributing to the overall quality of care offered. This section will define quality care by examining its evolution, the patient's perception of it, and factors that contribute to it.

The Evolution of Quality Care

According to Fallowfield (1990) the medical revolution of the twentieth century has to some extent diminished the early qualities pioneering doctors possessed. In the early 1900s doctors could offer a patient more comfort with a calm bedside manner and paternal instincts than he could with technical medical treatment (Fallowfield, 1990). Before the 1930s the public did not strongly consider the quality of medical care (Omachonu, 1991). Doctors did not possess the technical ability or have the scientific knowledge to alleviate pain in the same way that they do today. Therefore they helped the patient by creating a peaceful atmosphere so he could be comfortable in illness (Fallowfield, 1990). However, today's sophisticated diagnostic techniques, availability of medications, and complex invasive surgery procedures have led some to believe that quality care is an evaluation of the treatment's physical success (Omachonu, 1991; Fallowfield 1990). This is an outcome-based assessment and the basis for the medical model of quality care (Kleineman et all 1978). Although advances in the scientific fields of anatomy, physiology, bacteriology, chemistry, and biochemistry have brought success to the growth of medical treatment, the advances have also "led to a decline in the art of medicine" (Fallowfield, 1990 p. 16). Fallowfield (1990) claimed that physicians traded in their gentle touch for a more technical ability.

It must be noted, however, that research doctors need to pursue science aggressively in order for the medical revolution to advance (Somers & Somers, 1977). If doctors were not willing to break through walls of resistance to experiment with new found scientific knowledge and technology, some of today's most common treatments, including polio and measles vaccinations, would not be possible (Fallowfield, 1990). Countless advances in the medical sciences have shown that yesterday's controversy is tomorrow's standard practice (Somers & Somers, 1977).

While the technical merit of medicine advanced in the mid-1900s a new means of quality assessment started to become apparent throughout the 1960s and 1970s. The general public began to demand that doctors treat their patients from a wider angle. Patients desired to be treated as a person and not as a medical statistic, but they still expected the highest level of technical care available (Fallowfield, 1990). Donabedian (1966) identified three classic areas of quality care: structure, process, and outcome. Structure centred on the qualifications, certifications, and resources of healthcare providers; process dealt with the abilities of the physician and staff; and outcome centred on the consequences and benefits of treatment (Donabedian 1966). This definition of quality care is related to the definition provided by the social model rather than the purely medical model (Kleinman et all 1978).

With all of its changes, the medical community has not forgotten these basic elements of quality care. At a recent conference, the National Roundtable on Healthcare Quality (1998) stressed that quality is not always interchangeable with positive outcomes. Poor outcomes could occur if a suitable treatment does not exist despite the level of quality care received (Glavin, 1998). Quality must include both the process and the outcome serving as a link between the patient's desires and the manner in which technical care is provided (Glavin, 1998). For disabled patients, like those at the RHNd, the medical aspect of treatment is less significant than the social aspect of treatment because no cures exist for their conditions. A positive outcome in this situation is very seldom a physical improvement because the patient's condition often deteriorates with time (Illich 1977). These patients can often monitor their own conditions and do not need the complex diagnostic measures or treatment services that comprise the medical model of quality care. Therefore, in this situation, the manner in which care is provided as well as the social model implications of quality care gains importance (Illich 1977).

An additional reason why the medical model of quality care is not always appropriate for disabled patients is because the disabled patient often exists in an "impaired role." The "impaired role," as identified by Siegler and Osmond, takes into account the fact that members cannot return to the community as a result of their condition. In this role the member often returns to childhood actions and feelings of dependency. Many healthcare organisations for the disabled often contribute to accepting this "impaired role," and because returning to the community in these cases is not possible, the social model for quality care becomes even more important when assessing the patient's health and quality of life (Siegler and Osmond 1973).

Ever since healthcare moved from an individual approach to an institutional approach in the first half of the twentieth century, the hospital has been the centre focus or "standard-setter" of quality care definitions throughout the medical community (Somers & Somers 1977; Al-Assaf & Schmele, 1993). The hospital must therefore demonstrate not only exceptional technical competence but also a good understanding of the patient's feelings (Somers & Somers 1977; Fallowfield, 1990). The late 1980s saw another shift in this philosophy. Wyzewianski (1988) claimed that patients would flock to hospitals where technically renowned physicians practised based on facilities and available equipment. It is true that the technical services and availability of resources contribute to quality care, but they are not the only factors. For a patient, the attractiveness of facilities is only an added bonus (Omachonu, 1991).

Today's popular definition of quality care is a balance between the medical team's bedside manner and their technical competence (Somers & Somers, 1977; Fallowfield, 1990). In order to ensure total quality management the entire hospital staff must implement a continuous process for improving quality (Garside, 1998). The hospital's leaders should have a vision of what, why, and how to implement quality control to promote motivation in the staff and a caring environment for patients (Garside, 1998). Throughout implementation, the hospital cannot forget to use Donabedian's principles in a cohesive manner; otherwise total quality management will not occur (Al-Assaf & Schmele, 1993). Therefore, quality of care encompasses both the technical applications of science to a particular health problem and the professional-patient relationship. The role of the patient in this relationship and the demands he has concerning quality care directly affect his satisfaction.

The Patient's Perception of Quality Care

The client's satisfaction with the quality of medical care is an area of increasing interest. According to Omachonu (1991) quality is the balance between respecting the customer's expectations and adhering to certain professional standards. This definition explicitly includes the involvement of the patient in determining quality at a hospital. To patients (and their families) there are two sides of care, namely the content of services performed and whether or not they were performed satisfactorily (Omachonu, 1991). Before ever receiving treatment the patient has a set list of expectations influenced by personal experiences that define quality of care. These expectations include the attending physician's competence and promptness in alleviating the problem, any previous encounters, and knowledge of available technical services as well as the risks associated with them (Omachonu, 1991). Our survey questions will target various aspects of these specific patient demands.

First, in order for a patient to be satisfied with the care received, the physician must perform the service well and efficiently (Omachonu, 1991). The dissatisfaction British citizens have with the length of the waiting lists for admission to a rehabilitation facility shows the patient's desire for prompt treatment (Omachonu, 1991; Aaron & Schwartz, 1984). Mang (1995) identifies a contemporary theory consistent with this patient demand and Donabedian's principles for quality, which stresses that the hospital should be organised around the patient's needs and not the hospital's administration. A set of implementation strategies that could effectively decrease the time patients spend in the hospital is directly related to an increase in their satisfaction (Mang, 1995). Suggestions such as grouping patients with similar needs and diagnoses in particular areas, bringing the necessary services to a central location near them, cross-training staff to decrease the number of attending caregivers (thus forming primary care groups), and simplifying tasks all allow for greater efficiency in running the hospital (Mang, 1995). This increase in promptness will raise client satisfaction. A similar desire for promptness exists at the RHNd where decreasing the amount of time patients spend in discomfort would raise satisfaction.

Secondly, the patient's previous encounters in a hospital setting are a powerful force in his definition of quality care (Omachonu, 1995). If the patient or someone the patient knows had one bad experience with a particular doctor, he develops a bias against that physician. Similarly, if a patient consistently learns that friends and family have good experiences with a doctor, he is more open minded and confident of that doctor's abilities (Omachonu, 1991). These experiences mirror the process and outcome elements of Donabedian's quality principles (Omachonu, 1991). This can occur at the RHNd as a patient may slowly develop a bias against a member of the staff with whom he consistently has bad experiences. The overall hospital environment contributes to the patient's previous encounters as well. If the hospital does not meet the patient's most simple needs of warm meals, quiet and private atmosphere, a polite and respectful staff, cleanliness, functioning equipment, and courteous treatment to visitors, the patient will not be satisfied (Omachonu, 1991).

The third factor defining the patient's perception of care is a common weakness of many hospitals. The patient wants to have a working knowledge of the technical aspects of available services (Omachonu, 1991; Somers & Somers, 1977). If doctors ineffectively communicate the meaning behind highly technical services, the patient feels alienated and frustrated because his understanding is incomplete (Somers & Somers, 1977). This factor is directly related to Donabedian's process element in quality care because it deals with communication in the doctor-patient relationship. This patient expectation demonstrates the patient's desire to be treated as an individual and not a medical statistic (Fallowfield, 1990; Omachonu, 1991).

Underlying all of these patient expectations is one common factor: the relationship between the patient and doctor. An open doctor-patient relationship can fulfil all of the patient's demands leading to overall satisfaction. This is most applicable in the medical model of quality care, but for the patients at the RHNd, we can examine the relationship from a wider angle, namely that of a medical team-patient relationship.

The Changing Doctor-Patient Relationship

Initially the public viewed the doctor as a house-calling friend with a black bag, but the doctor's role has changed substantially in the later half of the twentieth century (Fallowfield, 1990). Now patients visit their doctor in a private office or in a technology-packed emergency room. These representations stemming from the medical model of healthcare all contribute to the dynamic relationship between doctors and patients that is a common focus of client satisfaction (Fallowfield, 1990).

Talcott Parsons originally summarised the doctor-patient relationship. He characterised feelings of helplessness, frustration, and emotional strain as the need for dependence on an authoritative figure, the doctor (Somers & Somers, 1977). The patient would then begin to rely on the doctor for logical guidance in treating his illness painlessly and promptly (Somers & Somers, 1977). As doctors' abilities increased, the patients' knowledge increased as well. Patients now instinctively notice incompetence and apathy; their devotion decreases and their demand for service increases (Somers & Somers, 1977).

The type of physician attending to a patient, his age, level of experience, interactions with staff, and overall attitude toward the patient play a major role in the relationship as well (Omachonu, 1991).

The medical community now views the doctor-patient relationship as an educator-student interaction (Somers & Somers, 1977). In this relationship the patient is an active participant in his treatment though not equal in medical intelligence to the doctor. The doctor challenges the patient to understand the illness so that he may make logical decisions concerning treatment and assume maximum responsibility for his condition (Somers & Somers, 1977). Although this seems to be a purely medical model for the doctor-patient relationship, it can extend to disabled patients. Involving a disabled patient in the treatment process, whether it is medical treatment or social treatment, can help increase his feelings of independence and role as an active care recipient. In this relationship the patient supplies the physician with a resource of health care activities, participates in them, is the product or outcome of the activities, and later contributes his opinion to the overall process (Lengnick-Hall, 1995). These diverse patient roles of patient/supplier, patient/participant, patient/product and patient/recipient contribute to the doctor-patient relationship with increasing importance and possibilities for improvement and growth (Lengnick-Hall, 1995). The doctor's role in this relationship mirrors the role of a mentor. He must educate the patient about his condition and possible methods of treatment, as well as inherent risks and emotional strain (Somers & Somers, 1977).

Obviously the key to this relationship is communication. The patient's wish for doctors to be honest with him prevails in various client satisfaction surveys (Somers & Somers, 1977). Bates (1983) identified a survey by the Royal Commission[2] on the NHS showing problems in communication between doctors and patients. The study showed that

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[2] Bates used this survey for support in her argument but does not state its complete origin.

only forty percent of patients received information booklets about the hospital and one in every three patients expressed a desire to know more about their condition and progress. Somers & Somers (1977) cite a British medical team's study[3] of 231 cancer patients who were informed of the seriousness of their curable cancers. Results showed that 153 patients approved of this honest communication while only 17 were sorry they knew. The remaining patients either expressed no opinion concerning the open communication or were in denial about their conditions (Somers & Somers 1977). These studies demonstrate the increasing desire for open communication between doctor and patient. Exceptional communication links between doctors and patients must exist at the RHNd if the hospital desires to ensure high levels of quality care. In order to evaluate the quality of the doctor-patient relationship we will use survey questions that target the amount of communication between doctor and patient concerning his condition.

In summary, quality care is a balance between the actual technical services and the manner in which they are applied. The patient's active involvement throughout his treatment, and his opinions about it upon receipt, have increasing importance in a hospital's assessment of quality care. The doctor-patient relationship has a considerable impact on the patient's perception of quality of care. An overwhelming increase in the patient's desire to be treated with respect and to learn about the problem at hand strongly influence the patient's satisfaction with services performed. Numerous studies have shown that communication may be the key to improving this relationship.

In addition, the severity of the illness, its connection to communication abilities, and the patient's adjustment directly relate to the patient's perception of quality care. Different diseases and disabilities have varied effects on their mental states throughout the duration of the disease whether it be a month, a year, or a lifetime (Fallowfield, 1990). This would be

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[3] Somers & Somers reference this survey but do not state the origin.

especially true at the RHNd. It is therefore necessary to understand the causes and possible side effects of the diseases the hospital treats.

Disabilities Treated at RHNd

The Royal Hospital for Neuro-disability treats people suffering from various neurological disorders as well as people living with the effects of a traumatic brain injury. Among the most common disabilities that the hospital treats are Huntington's disease, Parkinson's disease, Multiple Sclerosis, and Cerebral Palsy. All of these conditions are degenerative diseases that can cause difficulty in normal daily routines. Other patients have suffered some traumatic brain injury, stroke, or heart attacks. These patients have lost the ability to care for themselves and look to the hospital to improve their quality of life. To gain a clear picture of the hospital we must examine in detail the effects of these diseases and brain injuries on daily living.

Huntington's disease is a common hereditary disease that affects people in their thirties, forties, and fifties. If a person with Huntington's disease has a child, that child has a fifty- percent chance of inheriting the defective gene that causes the disease. If a person has the gene, he acquires Huntington's disease provided he lives long enough. Patients suffering from Huntington's disease usually die fifteen to twenty-five years after its onset (Kandel, Schwartz, Jessell 1995). Rapid, jerky movements known as chorea characterise Huntington's disease. It can also cause dementia, slurred speech, impaired judgement, and swallowing difficulty. Kandel, Schwartz, and Jessell (1995) state that people suffering from Huntington's disease often appear intoxicated in the early stages of the disease. In later stages the patient's condition deteriorates.

While Huntington's disease has few effective measures to aid patients coping with the disease, drugs help to fight Parkinson's disease. The drugs provide the chemical balance that allows the body to function properly. The nerve centres in the brain lose their ability to control muscles. This loss of muscle control characterises Parkinson's disease causing patients' limbs to tremble. Other effects include stiffness, slow movement, and a shuffling, unbalanced walk. It usually effects adults over the age of fifty-five. A signature movement of Parkinson's patients is a rubbing together of the index finger and thumb (CRS 1998). Not all patients will have this gesture, but many patients will exhibit this movement. Parkinson's is a manageable disease but is not yet curable (Curry 1993).

Another disease that has yet to be cured is Multiple Sclerosis (MS). It usually strikes between the ages of twenty and forty, with two-thirds of its victims being women. Indications of MS include blurred vision, awkward walking, numbness in the limbs, and fatigue. Other symptoms that occur in some patients are slurred speech, weakness, co-ordination loss, uncontrollable tremors, loss of bladder control, memory problems, depression, and paralysis. A patient's muscle spasms can affect balance, cause pain, and produce jerking movements. This can also cause contractors, freezing in the joint. Multiple Sclerosis is a debilitating disease that has yet to be managed effectively by drugs (Curry 1993).

Cerebral Palsy is a disorder of movement and posture. It is not a single disorder, but rather a group of different disorders. Most of these disorders are caused by damage to the brain in an early developmental stage. In general, there are four categories of Cerebral Palsy patients. The first category is known as spastic, which is defined as above normal muscle tone or stiffness in muscles. Involuntary movements, tremors, and jerky, writhing movements characterise athetoid patients. Atonic is defined as weakness and lacking normal muscle tone. The final category is any combination of the three described above. Cerebral Palsy has yet to be managed by drugs or therapy and no cure is available (CRS 1998).

All of these diseases can be quite crippling, as can traumatic automotive injuries, another area treated at the RHNd. Patients living with traumatic automotive injuries can have a broad range of conditions. Some suffer from memory loss, while others reside in a completely vegetative state. As Leonard LaPointe (1990) suggests, the acceleration-deceleration of the accident causes most of the damage to the brain. These patients may suffer from severe memory loss and may not be able to do simple tasks such as getting dressed because part of their brain was damaged. The patients that are completely vegetative have incurred the most severe injuries. In these types of injuries, the amount of force applied to the brain caused a loss of communication that cannot be reversed (Bloom and Ferrand, 1997).

It is often difficult to adapt emotionally to working with the patients in the hospital because their conditions are so severe. One possible way to ease the adjustment is learning to communicate with the patients, and establishing a rapport with them.

Communicating with the Disabled

Obtaining accurate information from the clients is necessary to give the staff at the RHNd appropriate recommendations. Different diseases and injuries have multiple effects on the ability to communicate. Traumatic injuries and neurogenic diseases affect brain function which causes a variety of different communication disorders.

Huntington's disease causes dementia and slurred speech. In addition, other problems exist that impair communication for somebody suffering from Huntington's disease. When communicating with these patients, all information registered by the patients is mildly impaired. Often patients will have difficulty retrieving information stored in memory. The effect that the disease has on memory retrieval leaves patients searching for words. In the late stages of the disease, patients will lose all ability to communicate verbally.

Similar to patients with Huntington's disease, Parkinson's patients have difficulties finding words. These patients often have trouble problem solving and exhibit slowness in memory abilities. Furthermore, Parkinson's patients have problems in concept formulation.

Dementia becomes a problem as the severity of the disease increases, becoming quite severe (Bloom and Ferrand, 1997). The problem solving capabilities and conceptualising abilities of the patients affects the type of questions in our survey. To account for these problems, our survey contains very simple, direct questions that do not involve complex thinking.

While the two previously mentioned diseases affect the brain, Cerebral Palsy affects the muscles in the body. The patients may know exactly what they want to say, but they may not be able to control their jaw muscles in the necessary movements in order to speak clearly. The disease causes muscles spasms that affect everything including the jaw and tongue muscles. Cerebral Palsy patients often drool when speaking and their speech is also very slurred making it difficult to understand them (Bloom and Ferrand, 1997).

Communicating with patients suffering from Multiple Sclerosis is difficult because they have both brain and muscle dysfunction, whereas only one communication barrier was associated with the previous diseases. Bloom and Ferrand (1997) note that MS patients often speak with harshness, impaired loudness, and defective articulation. Because the disease often debilitates the respiratory system, breathing concerns limit the length of phrases used (Bloom and Ferrand, 1997).

While communicating with patients suffering from various types of diseases is difficult, communicating with patients suffering brain injuries may be the most troublesome because the injury's severity is not known. Hartley (1995) gives a scale used to measure the degree of communication of the patients. The scale tests intelligibility, eye gaze, sentence formulations, coherence of narrative, and topic. All categories are rated using a one to nine scale (Hartley 1995). This will give the interviewer some basis to ask questions and will help the interviewer to understand what the answers mean and how they should be judged. The category of brain injuries will have the widest range of patients ranging from very fluent and coherent to completely vegetative.

The ability to communicate will be a key aspect in getting reliable results from the survey. The severity of the injury may often influence the wording and placement of survey questions. In order to present the RHNd staff with proper recommendations, we must carefully consider not only all of the different aspects of the patients, but also possible implementation problems, and the analysis of the results.

Design, Implementation, and Analysis of a Sample Survey

Patient satisfaction surveys are becoming more widespread because many healthcare services believe in the importance of the perception of quality (Nelson, 1990). Also, these providers are beginning to use survey results more significantly to measure satisfaction. Haskell and Brown (1998) state that a survey can determine how well the staff of a hospital meet the expectations and needs of the patients. Patients' feedback is currently redefining health care services (Huff, 1998).

Surveys that utilise segments of a particular population to determine opinions, characteristics, or behaviours of the entire population are sample surveys (Salant & Dillman, 1994). Designing and implementing a survey is a complicated step-by-step process. The first step in sample surveying is to determine the goal of the study (Singh & Chaudhary, 1986). For example, the objective of a patient satisfaction survey is to measure client response to hospital quality.

After determining the objective of the study, the next step is to define the population under study (Singh & Chaudhary, 1986). In a patient satisfaction survey, the population will obviously include the patients. However, the population may also include patients' relatives if their insight is relevant to the topic of the survey. It is important to define the population using unambiguous and clear terms (Singh & Chaudhary, 1986).

Next, researchers determine how to carry out the survey. According to Chesanow (1997), the objective of the study will dictate what type of survey should be used. Phone and mail surveys are popular methods. Another way to conduct a survey is through an in-person interview, which Berg (1998) defines as conversing in order to collect data or information. Interviews can be either structured or unstructured. According to Wright (1979), structured surveys involve systematic series of questions in which subjects choose their responses from alternatives offered. Berg (1998) refers to this type of survey as the standardised interview which involves structuring a specific schedule of questions. Unstructured or unstandardised interviews do not work from a schedule of questions (Berg, 1998) and are generally used in wide exploration of a topic (Wright, 1979). This technique, however, is rare in large sample surveys.

After establishing the objective, the population, and the method, it is time to develop the questions for the survey. Question development for surveys is extremely important, and experts Wright (1979) and Chesanow (1997) even consider writing survey questions an art. When developing questions, it is important to examine the psychology of a subject's exposure to an interview question (Sudman, 1996).

According to Sudman (1996), when asked a question, the respondent must then accomplish certain "tasks" in order to answer. The first task is to interpret and understand what the question is asking. Opinion based questions cause respondents to "retrieve a previously formed opinion from memory," or they may need to develop a new opinion (Sudman, 1996, p. 56). If the judgement was not previously stored, the respondent must then access relevant information on which to base a new opinion. Once the respondent forms an opinion, he may edit it due to situational or social factors. Finally, the subject communicates his response to the interviewer (Sudman, 1996).

There are several criteria applied to question development and wording. First there must be consistency between the comprehensibility of each question and the characteristics of the population (Frey & Oishi, 1995). Frey and Oishi (1995) also state the importance of minimising the number of questions that produce confusion or non-substantive responses. Questions should not give the respondent the idea that one answer is preferable. Frey & Oishi (1995) refer to these as loaded questions.

Berg (1998) and Wright (1979) agree that it is important to sequence questions properly and to implement detailed skip patterns. Frey & Oishi (1995) stress question transition that is consistent with both the previous and succeeding question. Salant and Dillman (1994) recommend assigning each question and answer to a number. This allows for simplification of question transition, and makes interpreting results and entering data into computers easier.

When developing the survey, it is important to determine what types of questions to ask. There are several types of questions that appear on patient surveys, but according to Huff (1997) questions should obtain answers which give the most precise details. Some surveys incorporate the always-to-never response spectrum rather than poor-to-very good (Huff, 1997). Other surveys ask mostly yes-and-no questions in order to receive a clearer definition of patients' concerns (Huff, 1997). Survey questions should deal with specific patient experiences rather than overall levels of satisfaction (Huff, 1997).

Once we set up the survey, we must then determine the sample frame. A sample is "a set of respondents selected from a larger population for the purpose of a survey" (Salant & Dillman, 1994, p. 53). Singh & Chaudhary (1986, p. 12) define the sample frame as the "list of all sampling units with reference to which relevant data are to be collected." In this patient satisfaction survey, sampling units may include (1) patients who can communicate verbally, (2) patients who have a limited level of communication, and (3) family members of patients who cannot communicate at all. These three units make up the survey's sampling frame. Salant and Dillman (1994) define a list of the population from which a sample is drawn as the sampling frame. The sampling frame should specify the geographical, administrative, and demographical boundaries in order to eliminate ambiguity of what the survey covers (Singh & Chaudhary, 1986).

After defining the sample frame, we must determine the actual sample to be surveyed. There are many methods of selecting the sample from the frame, but the complexity of the method depends on the size of the population (Salant & Dillman, 1994). Many times, samples are selected at random. This method, called simple random sampling, is an adequate method when dealing with small areas and small populations (Salant & Dillman, 1994). It is usually very difficult to select a sample completely at random, unless a population list is available.

Another popular method is stratified surveying which uses sampling units that are broken down into homogeneous groups called strata (Sukhatme, 1970). In a patient satisfaction survey, the patient sample can be stratified by a ward-to-ward basis, by level of communication ability, or by types of disability. Singh & Chaudhary (1986) give four principles for stratifying a survey population. First, the researcher must account for the entire population without overlapping. Second, the strata must be "homogeneous within themselves, with respect to the characteristic under study" (Singh & Chandhary, 1986, p. 49). Third, surveyors may use stratification for convenience reasons. Finally, researchers can base stratification on limits of precision.

Sample size determination depends on what information is known regarding the objectives of the survey, need for precision, and characteristics of the population (Salant & Dillman, 1994). Sukhatme & Sukhatme (1970) give three steps in determining sample size for stratified sampling. First, the more subjects in the stratum, the larger the sample size should be for that stratum. Second, the more the stratum varies, the larger the sample size should be for that stratum. Finally, the more inexpensive it is to interview a member of the stratum, the larger the sample should be from that stratum. Salant and Dillman (1994) provide a useful table for sample size selection based on the population size, the level of sampling error that can be tolerated, and how the characteristics of the population vary.

After determining who is to be surveyed, the fieldwork must be carried out properly (Singh & Chaudhary, 1986). According to Wright (1979), implementing a survey in person requires competent interviewers who are knowledgeable in both verbal and writing skills. Interviewers should carry out the survey consistently with each subject in order to provide for uniformity (Wright, 1979). Berg (1998) states in his "Ten Commandments of Interviewing" that the interviewer should know the questions, be affirmative, dress appropriately, and be respectful to the subject. The interview should be held in a location where the respondent can be comfortable and should start with an introduction, thus establishing a comfortable rapport (Berg, 1998). Berg (1998) also believes that practice is the only way to become a proficient interviewer.

Finally, after collecting the information during in-person surveys, it is time for data analysis and summarisation (Singh & Chaudhary, 1986). Results from structured interviews are easily adapted to quantitative data (Wright, 1979). According to Singh and Chaudhary (1986), analysis of data includes editing, tabulation, statistical analysis, and conclusion. Salant and Dillman (1994) state that a survey report should include an abstract, a problem statement, methods and procedures, error structure, findings, implications, and appendices. The report should present only data that is relevant to the objective of the study (Salant & Dillman, 1994).

Use of statistical programs such as Microsoft Excel can add sophistication and power to data analysis (Salant & Dillman, 1994). When entering data into the program, it is important to verify the work in order to minimise measurement error (Salant & Dillman, 1994). Analysing answers can be done through counts, distributions, measures of central tendency, and dispersion. Counts and percentage distribution best describe the results of close-ended questions (Salant & Dillman, 1994). This includes counting how many times each response was given and calculating percentages for each response.

Measures of central tendency best summarise responses to open-ended, quantitative questions (Salant & Dillman, 1994). They include three types of averages: mean, median, and mode. First, to calculate the mean, the researchers divide the total of the responses by the number of responses. Calculating the median involves ranking the responses from lowest to highest, and the middle value is the median or the average of the two middle responses if there is an even number of total responses. Third, the response given to a particular question most frequently is the mode.

Measures of dispersion show the uniformity of answers (Salant & Dillman, 1994). Range from lowest to highest can measure dispersion, but it only shows the two extremes without showing the distribution of the remaining values. Standard deviation better measures how values are distributed around the mean. Confidence intervals show the percentage of accuracy in a particular range, which the entire population falls, based on the sample's responses. Formulas for standard deviation and confidence interval can be found in the Analysis section of the Methodology chapter.

It is important to understand that survey results are only close estimates that do not possess absolute certainty. Salant and Dillman (1994) identify four types of error in survey technique: coverage error, sampling error, measurement error, and nonresponse error. Coverage error occurs when the sample selection does not reach the entire frame. Sampling error can occur if the sample size is not large enough to obtain sufficient precision. Measurement error can be avoided by developing and asking questions in an unbiased, clear, and unambiguous manner, thus allowing for legitimate responses. Nonresponse error occurs when questions remain unanswered, also referred to as missing data (Wright, 1979; Salant & Dillman, 1994). Missing data can be the result of subjects dropping out of the study. This is called attrition (Wright, 1979). A subject's refusal to respond and poor communication can also result in missing data. Drawing invalid conclusions can be the result of significant nonresponse error, even after choosing a proper sample (Wright 1979). Salant and Dillman (1994) strongly stress that all four types of error must be minimised when designing and implementing a sample survey.

The value of a survey is also related to its validity and reliability (Wright, 1979). Wright (1979) describes reliability as consistency in the administration of the study. A reliable survey can be conducted at two different time points without affecting the results. According to Haskell and Brown (1998), pre-testing the survey is the best way to determine reliability. Validity describes how well the study measures the actual objective (Wright, 1979). According to Haskell and Brown (1998), nurses should evaluate the patient satisfaction surveys before implementation in order to determine content validity. Any feedback from both patients and staff will help increase validity and reliability.

Repetition of a reliable and consistent study in the future can identify the ability of the hospital to respond to patients' complaints and concerns (Haskell & Brown, 1998). This will help to further the performance of the improvement process and to reach the long-term goal of increasing client satisfaction at the hospital.

The patient satisfaction survey is a complicated process involving many steps. Developing properly worded questions, choosing a statistically accurate sample, and pre-testing are just three of the steps that can minimise sources of error. An additional step is becoming competent in interviewing so that the survey is implemented successfully. We have paid special attention to the steps of proper design, implementation, and analysis of our survey.

Conclusion

Once we understood NHS operations, the patients' definition of quality care, what diseases the RHNd treats, and how to complete a survey from start to finish, we were confident that our client satisfaction survey would be successful. The fundamental principles of the NHS influence the patient's perception of the system and therefore his attitudes about care received in it. The patients' definition of quality care at the RHNd, as at other British hospitals, plays a major role in their level of satisfaction. Factors such as previous encounters, knowledge of technical services available, and the implementation of services all affect quality care. The researchers' abilities to communicate and understand the implications of a patient's disorder not only develops good rapport but also determines the amount of patient feedback during the survey. We have properly designed, implemented, and analysed the survey to minimise error and to produce useful results which allows the hospital to continue meeting its long-term goal of maximising quality care.

3.0 Methodology

Objective

The project team conducted a study measuring patient satisfaction at the Royal Hospital for Neuro-disability (RHNd). At the end of the seven-week term, we provided the hospital with results comparing specific dimensions of care. From these results, we were able to determine which specific areas of care are of particular concern to the patients. The hospital staff is now able to implement improvement procedures to minimise weaknesses and ultimately upgrade the quality of care.

Method

The perceptions of the patients and their families are invaluable when measuring the quality of care at a hospital. The project team has implemented an in-person patient satisfaction survey (PSS) to measure these perceptions. The survey is quantitative and involves the selection of a sample representing the entire population. For the patients who were unable to complete the survey, we randomly selected family members who visit on a regular basis. In order to create a greater picture of patients' perceptions of quality care, we also implemented a limited number of in-depth qualitative interviews with patients who can communicate verbally, and observed a patient representative meeting. This monthly meeting gives patients and families from each ward at the hospital the opportunity to express any concerns to the quality assurance department.

Sampling

The 252 patients at the Royal Hospital for Neuro-disability make up the population under study. Due to time constraints, it was impossible to conduct a census of the patients of the RHNd. It proved to be more efficient to select a sample from the population. According to a sample size selection table (Salant & Dillman, 1994, p. 55) and the sample size equations (1) and (2) explained below (Singh & Chaudhary, 1986, p. 41), for a population with 252 members, a sample of 70 members produces no more than plus or minus ten percent sampling error at the 95 percent confidence level.

Equation (1), Size for sampling with replacement, n_0

$$n_0 = t^2 \times P\frac{(1-P)}{\in^2} \tag{1}$$

Equation (2), Size for sampling without replacement, n_1

$$n_1 = \frac{n_0}{1+(n_0-1)/N} \tag{2}$$

P = Population proportion (the percentage of the population having a particular characteristic).

In this case, we estimated the views of the population to vary greatly; therefore we assume P to be equal to 50% or 0.5. Therefore, $P(1-P)$ will be at its maximum value.

t = Normal variate which is equal to 1.96 (Singh & Chaudhary, 1986).

$\in$ = Marginal permissible error. Due to time constraints, we allowed for no greater than plus or minus ten percent sampling error. Therefore we set $\in = 0.10$.

N = Number of units in the population which is equal to 252.

We have broken down the population into three subgroups based on each patient's communication ability. The first group includes patients who can communicate verbally. The second group includes those who have a limited level of communication. These patients either have limited verbal ability or use alternative means such as blinking an eye, motioning to letter boards, utilising voice boxes, and using computers. Patients who cannot communicate sufficiently to complete the survey make up the third group. For these patients, we have surveyed their family members in order to gain perceptions of quality care. To account for substitution bias that occurs when interviewing families for patients' perceptions, we needed to gain a different perspective. In this case we completed a few qualitative in-depth interviews. From these interviews we were able to gain valuable insight about life at the hospital for patients who cannot communicate. We expected their lives to be very different from the lives of patients who can communicate in some form.

Upon reviewing the complete patient list and stratifying it based on communication level, we discovered that over half of the patients of the hospital would not be able to communicate with us. Therefore, to keep the focus of the study centred on the patients, we selected a larger percentage from the first two subgroups. Two major factors led to this decision. First, our liaison suggested that we focus on those patients who can communicate, and second, a large number of families are unavailable for surveying. We determined the sample size for the first two subgroups, independent of the third group, using Equations (1) and (2). We then surveyed families from the third subgroup until we reached our overall sample size of 70, explained above. The following table details the breakdown between the number of patients in each stratum and the number of patients being surveyed.

Figure 3.1 - Sample Break Down for Quantitative Survey

Group	**Description**	**Percentage of Population**	**Group Population**	**Sample Size**
Group I	Verbal communication	12%	30	14
Group II	Limited communication	36%	91	40
Group III	Patients who cannot complete survey	52%	131	16
Total	**All Patients**	**100%**	**252**	**70**

To minimise coverage error, each of the three groups are represented in the sample. Since we know our sampling frame, we can state that every member of the population has an identical probability of being selected. Therefore, we implemented simple random sampling (Berg, 1998).

Steps in Simple Random Sampling

In simple random sampling the first step is to choose the sample from a defined population. For each subgroup, each patient was assigned a number. The numbers were then randomly selected using the lottery method (Singh & Chaudhary, 1986). We completed this using Microsoft Excel. If a patient or family member was unavailable or did not wish to participate, we chose the next available name on the list.

We randomly selected patients who could communicate verbally for the in-depth qualitative interviews. Similarly, we randomly selected families for in depth interviews. The data from even a limited number of interviews helped us to obtain a more complete picture of the patients' perceptions (Berg, 1998). Due to time constraints we were only able to conduct a limited number of in-depth interviews but even from this small number we noticed considerable overlap of information.

Questions

The survey questions emphasise specific dimensions of care, allowing for comparing and improving certain areas. We have obtained information through specific questions based on the following broad topic questions:

- Does the staff respect the patients' preferences and needs?
- Does the staff respond promptly to patients' requests?
- Does the staff inform and educate the patients?
- Are the patients comfortable and free of pain?
- Is the atmosphere quiet and respectful?
- Does the staff support the patients emotionally?
- Is the staff courteous to family members and other visitors?

The survey includes yes-or-no questions, as well as those with Likert-type scales, in which the respondent selects an answer from a one-to-five spectrum of responses such as always-to-never, strongly agree-to-strongly disagree, and poor-to-excellent. If for any reason the respondent did not answer a particular question, the surveyor marked the response as DKNA (don't know or no answer). We did not offer this type of response verbally, thus requiring the respondent to come up with a more useful answer.

Implementation

The project team surveyed patients utilising a uniform survey methodology. We interviewed all the respondents in the same time frame and in the same manner, ensuring that the results are comparable. We implemented the survey spanning from week two to week four, thus allowing fifteen workdays for surveying patients and families. This gave us adequate time for pre-testing and to account for any problems we encountered.

We pre-tested the survey to patients to ensure that questions were worded properly. Members of the hospital staff evaluated the specific questions to make sure the content was valid (Haskell & Brown, 1998). Any feedback from the patients and staff was helpful to improve the instrument. Patients who participated in the pre-test were not selected for the survey sample for the pre-test population.

We kept our survey brief enough so that the patients with intact communication abilities could complete it in about twelve minutes. For respondents with communication difficulties, the survey usually lasted no longer than twenty-five minutes. Pre-testing the survey ensured that we did not exceed these time limits.

Problems Encountered

As with any survey we expected a fair number of problems to arise due to bias and the overall setting. The best way to account for these problems is to think of them ahead of time and plan for ways to avoid and to solve them. Previously, we identified the possible problems inherent in this type of survey and developed mechanisms to minimise their effect on the results.

The survey team had to account for and to minimise a number of error types. One common problem associated with any survey is nonresponse error. If the respondent refuses to participate then a backup must be readily available. Using a simple random sampling method allows us to correct this problem by choosing another respondent. If a potential respondent failed to participate then we used the lottery system to pick another name. A proper sampling size also accounted for this possibility. Other advantages of a proper sampling size include minimising missing data and ensuring that the sample is representative of the entire population or frame, e.g. the hospital's patients and their families. By including every patient presently treated at the hospital in the frame we were able to minimise coverage error. However, we had to eliminate patients who cannot communicate and do not receive visitors. Whenever the sample included such a patient, we simply chose the next number on the list. Other than in this case, we did not use our own biases to eliminate patients from the sample; rather the sampling technique was the only tool that chose respondents in this survey. Furthermore, to minimise nonresponse and measurement errors, we developed unbiased, clear, and unambiguous questions.

So far, the identified problems were accounted for before the implementation began. We also prepared for problems and biases that could have occurred during administering and analysing the survey. We originally thought that in some cases it would be practically impossible to isolate the respondent. However, every survey was completed in a comfortable, private location where the respondent was at ease to answer. The patients we talked to did not require the assistance of a nurse for interpretation while answering the questions. We eliminated the need for a nurse by using tools including letter boards, computers, and response cards. This decreased an intersubjectivity bias otherwise present when the nurse interprets.

Furthermore, we had to minimise the patient's cost for participating in this survey. The disabilities these patients live with cause extreme emotional strain and depression, not only for themselves, but for the families as well. We realise that asking these patients to discuss their lives is an immense psychological cost. By demonstrating that we understand the effects and limitations of their disabilities we created good rapport with the patients. They seemed more responsive to us when we were even slightly understanding of the implications of their disabilities. We originally felt that the patients may not only be uncomfortable talking about their disability itself but also about how they are treated at the hospital. We thought they might fear that telling us what they dislike about the nurses could bring harsh repercussions once the survey is finished. It was therefore imperative that we ensured confidentiality. The patients understood that everything they told us could only be used to help them. One way we created a comfortable and open atmosphere was by letting the patients know that we were presenting a pooled analysis of the results to the hospital and not each individual's response. They knew that our goal was to identify ways in which the hospital can increase their quality of life. The number of participants in the survey was small enough so that each individual response has had an impact on analysis. These factors have contributed to a high response rate, thus allowing us to reach our entire sample size on schedule.

During project implementation we also encountered a substantial number of problems concerning the scheduling of appointments with patients and their families. When scheduling appointments for a patient to complete the survey, we would check the patient's schedule with a senior level staff member as well as speak to the patient himself. However, when the hour arose to administer the survey to the patient, we often discovered that the patient was unavailable. Sometimes a visitor had arrived to take the patient out whereas other times, the patient had simply left to have his haircut or listen to some music elsewhere. When this occurred, we simply made another appointment to try again. A similar problem arose when surveying family members. Very often, the names of families generated from simple random sampling were names of families who did not visit regularly. Finding families who would potentially visit within the following weeks proved to be very difficult and therefore our selection was limited. The limited availability of family members to survey brought about bias in the analysis of the results of family surveys. This bias eliminated the views of patients in Group III who do not receive visitors.

Analysis

We have analysed the data for each question using a statistical method which best presents the findings. This was done through counts, distributions (i.e. percentage distribution of responses), measures of central tendency (i.e. mean, median, mode), and measures of dispersion (i.e. range, standard deviation, confidence interval).

Upon completion of the survey, we tabulated the results with the aid of Microsoft Excel, a statistical software package that adds sophistication and power to data analysis. We entered formulas that calculate percentage distributions for yes-or-no questions and calculate the mean and median for Likert questions. Excel also aided in incorporating measures of dispersion when comparing the dimensions of care. We entered equations (3) and (4) explained below (Freund, 1979) for standard deviation and confidence interval respectively.

Equation (3), Calculation of standard deviation, s

$$s = \sqrt{\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)}} \tag{3}$$

Equation (4), Calculation of confidence interval, $CONFIDENCE$

$$CONFIDENCE = x_0 \pm t\left(\frac{\sigma}{\sqrt{n}}\right) \tag{4}$$

n = Number of responses to a particular question.

Σx^2 = Sum of squares of response values.

Σx = Sum of response values.

x_0 = Mean response value.

t = Normal variate which is equal to 1.96 (Singh & Chaudhary, 1986).

From the analysis, we used graphs to compare the specific dimensions of care based on client perception, paying particular attention to areas of weakness and concern. We also compared the three levels of communication to the population as a whole.

In analysing the qualitative interviews and observations from patient representative meeting we wrote out field notes individually, compiled them together, and compared with quantitative data. We used both the interviews and observations as quality control methods, verifying survey results. The qualitative data supports and explains the results of the survey.

Presentation

After analysis, we submitted the results in a presentation to the hospital's quality control department. The survey data appears in detailed and analysed form with a running commentary on the results of the questions. Through the analysis, we identified strong and weak areas of hospital procedures so that the quality control department will make improvements. We also suggest ways to implement these necessary improvements. The department is now able to start with the most problematic areas and to enhance care in that division thus improving the quality of life for the patients.

4.0 Data

Survey Results

In order to organise the data for later analysis, we tabulated the survey results using a Microsoft Excel spreadsheet where we were also able to note the surveyor, survey number, gender, date, time, ward, communication subgroup, length of stay, diagnosis, and any comments such as whether or not a nurse was present during the survey. For each survey question, we calculated counts, distributions, measures of central tendency, and measures of dispersion. For yes-or-no questions, counts include number of responses as well as number of yes responses. For Likert scale response questions, counts include number of responses only. The distributions for yes-or-no response questions include percentages of yes responses. To analyse Likert scale response questions, we used mean and median. In order to calculate a confidence interval for both question types, we first determined the standard deviation for each question, since the two measures are directly related. Using a Microsoft Excel spreadsheet and the formulas described in the Analysis section of the Methodology chapter, we were able to calculate each of the statistical measurements for direct analysis and comparison.

The following tables detail the survey results in a question-by-question manner. Table 4.1 is a summary of the responses we obtained from the entire sample. The table includes each question number, type of scale (yes-or-no or 1-5), question topic, counts, mean, median, standard deviation, percentage of yes responses, confidence interval, lowest value, and highest value. The type of scale column on the table lists a few different abbreviations: VP-E stands for very poor-to-excellent, N-VO is the abbreviation for never-to-very often, S-VN describes the variations in noise level from silent-to-very noisy and finally SD-SA is a standard scale for strongly disagree-to-strongly agree. The patient and family survey instruments which show the actual wording of questions are found in Appendices C and D.

Table 4.1 Survey Results for Entire Sample								Confidence Interval	
#	Scale *	Topic	Count	Mean	Median	Stnd. Dev.	%Yes	Low End	High End
1a	VP-E	How patient feels lately	67	3.79	4	0.897		3.58	4.01
2a	N-VO	Enjoy food	56	3.68	4	1.208		3.36	3.99
b	N-VO	Enjoy taste of food	55	3.31	3	1.386		2.94	3.68
c	N-VO	Portions large enough	54	3.85	4	1.235		3.52	4.18
d	yes/no	Eat same foods regularly	58			0.467	68.97%	56.96%	80.98%
e	yes/no	Meals served when hungry	56			0.682	64.29%	46.43%	82.14%
3a	yes/no	Have own room	61			0.489	62.30%	50.03%	74.56%
b	yes/no	Room large enough	58			0.329	87.93%	79.47%	96.39%
c	yes/no	Room comfortable	58			0.000	100.00%	100.00%	100.00%
d	yes/no	Allowed to decorate room	56			0.496	58.93%	45.93%	71.93%
e	yes/no	Pleased with furniture	55			0.440	74.55%	62.93%	86.16%
f	yes/no	Bed comfortable	57			0.434	94.74%	83.46%	106.01%
g	N-VO	Sleeps enough	52	4.02	4	1.093		3.72	4.32
h	N-VO	Room kept clean	54	4.48	5	0.771		4.28	4.69
I	N-VO	Room kept comfortable temperature	54	4.13	5	1.182		3.81	4.44
j	yes/no	Feel confined to room	58			0.467	31.03%	19.02%	43.04%
4a	yes/no	Variety of activities	69			0.442	73.91%	63.48%	84.35%
b	yes/no	Informed of activities	69			0.457	71.01%	60.23%	81.80%
c	yes/no	Enjoy activities	61			0.358	85.25%	76.27%	94.22%
d	yes/no	Staff tries hard to make act's enjoyable	66			0.361	84.85%	76.13%	93.57%
e	yes/no	Go outdoors	70			0.403	80.00%	70.56%	89.44%
f	yes/no	Enjoy going outdoors	68			0.315	94.12%	86.64%	101.60%
g	N-VO	How often participates in activities	64	3.22	3	1.327		2.89	3.54
5a	yes/no	Allowed to move freely in wheelchair	67			0.344	86.57%	78.34%	94.79%
b	yes/no	Chair is comfortable	68			0.357	85.29%	76.81%	93.77%
c	yes/no	Chair fixed promptly	50			0.644	62.00%	44.15%	79.85%
d	N-VO	How often able to move about hospital	59	4.03	5	1.231		3.72	4.35
6a	yes/no	Have visitors	53			0.423	77.36%	65.98%	88.73%
b	yes/no	Staff present when with visitor	58			0.504	50.00%	37.02%	62.98%
c	yes/no	Enough privacy when with visitor	58			0.329	87.93%	79.47%	96.39%
d	yes/no	Enough time with visitor	57			0.285	91.23%	83.82%	98.64%
e	N-VO	How often people visit	56	4.00	4	1.027		3.73	4.27
7a	yes/no	Hospital overall pleasant	69			0.339	86.96%	78.95%	94.96%
b	N-VO	Hospital kept clean	67	4.42	5	0.907		4.20	4.64
c	N-VO	Hospital friendly between patients	67	4.18	4	0.833		3.98	4.38
d	N-VO	Hospital friendly between patients / staff	68	4.07	4	0.967		3.84	4.30
e	N-VO	Pleased with noise level	67	3.85	4	1.222		3.56	4.14
f	S-VN	Describe noise level as...	67	2.78	3	0.670		2.62	2.94
g	yes/no	Prefer quieter atmosphere	68			0.522	26.47%	14.07%	38.87%
8a	SD-SA	Staff communicate well with patient	68	3.94	4	0.896		3.73	4.15
b	SD-SA	Staff uses communication tool properly	4	3.75	3.5	0.957		2.81	4.69
c	SD-SA	Communicate effectively without tool	18	4.06	4	0.938		3.62	4.49
d	SD-SA	Staff keeps patient informed about condition	64	3.64	4	1.014		3.39	3.89
e	SD-SA	Knowledgeable about condition	65	4.28	4	0.839		4.07	4.48
9a	SD-SA	Usually physically comfortable	69	3.97	4	0.891		3.76	4.18
b	SD-SA	Staff gives adequate meds to minimise pain	54	4.19	4	0.826		3.96	4.41
c	SD-SA	Staff responds promptly when in pain	60	4.22	4	0.783		4.02	4.41
d	SD-SA	Staff comforts when in emotional pain	53	4.06	4	0.949		3.80	4.31
e	SD-SA	Staff respects needs and concerns	68	4.15	4	0.868		3.94	4.35
f	SD-SA	Staff treats with respect and dignity	67	4.21	4	0.729		4.03	4.38
g	SD-SA	Staff supportive to living in hospital	67	4.28	4	0.867		4.08	4.49

From Table 4.1, we can immediately pick out a few areas of concern at the hospital. These areas include the taste of the food and the patient's inability to decorate their room freely. We notice that approximately one third of the patients at the hospital feel confined to their room and patients only participate in the hospital's activities "sometimes" as shown by a mean value of 3.24. Another immediate area of concern is the ability of the staff to inform patients about their present conditions. While these are areas of concern, the results also show several strong areas at the hospital. For example, every respondent feels that his room is comfortable. The patients also feel that their rooms as well as the overall hospital are always clean. Although many areas of care at the hospital are strong, these are the only overwhelming strengths.

In Tables 4.2 through 4.4, we summarise the survey results for each of the three sample strata or groups. Group I (Table 4.2) includes patients who had no trouble communicating verbally with us during the survey. Group II (Table 4.3) includes patients who have limited verbal communication abilities or utilise various types of communication aids. Group III (Table 4.4) includes the families of patients who could not complete the survey. Statistical measures in this table include counts, mean, median, standard deviation, and percentage of yes responses.

Table 4.2 Survey Results for Communication Group I - verbal							
#	**Scale ***	**Topic**	**Count**	**Mean**	**Median**	**Stnd. Dev.**	**%Yes**
1	VP-E	How patient feels lately	14	3.64	4	0.84	
2a	N-VO	Enjoy food	14	3.86	4	1.03	
b	N-VO	Enjoy taste of food	14	3.79	4.5	1.37	
c	N-VO	Portions large enough	14	4.21	5	1.05	
d	yes/no	Eat same foods regularly	14	1.43	1	0.51	57.14
e	yes/no	Meals served when hungry	13	1.69	1	1.11	53.85
3a	yes/no	Have own room	10	1.50	1.5	0.53	50.00
b	yes/no	Room large enough	5	1.20	1	0.45	80.00
c	yes/no	Room comfortable	5	1.00	1	0.00	100.00
d	yes/no	Allowed to decorate room	4	1.00	1	0.00	100.00
e	yes/no	Pleased with furniture	4	1.50	1.5	0.58	50.00
f	yes/no	Bed comfortable	5	1.00	1	0.00	100.00
g	N-VO	Sleeps enough	5	4.20	5	1.30	
h	N-VO	Room kept clean	5	4.80	5	0.45	
I	N-VO	Room kept comfortable temperature	4	5.00	5	0.00	
j	yes/no	Feel confined to room	5	1.80	2	0.45	20.00
4a	yes/no	Variety of activities	14	1.14	1	0.36	85.71
b	yes/no	Informed of activities	14	1.29	1	0.47	71.43
c	yes/no	Enjoy activities	14	1.00	1	0.00	100.00
d	yes/no	Staff tries hard to make activities enjoyable	14	1.14	1	0.36	85.71
e	yes/no	Go outdoors	14	1.21	1	0.43	78.57
f	yes/no	Enjoy going outdoors	13	1.00	1	0.00	100.00
g	N-VO	How often participates in activities	13	3.85	4	1.21	
5a	yes/no	Allowed to move freely in wheelchair	11	1.09	1	0.30	90.91
b	yes/no	Chair is comfortable	12	1.25	1	0.45	75.00
c	yes/no	Chair fixed promptly	12	1.25	1	0.45	75.00
d	N-VO	How often able to move about hospital	11	4.36	5	1.21	
6a	yes/no	Have visitors	14	1.57	2	0.51	42.86
b	yes/no	Staff present when with visitor	7	1.71	2	0.49	28.57
c	yes/no	Enough privacy when with visitor	7	1.14	1	0.38	85.71
d	yes/no	Enough time with visitor	7	1.14	1	0.38	85.71
e	N-VO	How often people visit	6	3.67	4	1.51	
7a	yes/no	Hospital overall pleasant	14	1.07	1	0.27	92.86
b	N-VO	Hospital kept clean	14	4.50	5	0.94	
c	N-VO	Hospital friendly between patients	13	4.62	5	0.65	
d	N-VO	Hospital friendly between patients and staff	14	4.36	5	1.08	
e	N-VO	Pleased with noise level	14	4.14	5	1.35	
f	S-VN	Describe noise level as...	13	2.85	3	0.69	
g	yes/no	Prefer quieter atmosphere	12	1.92	2	0.79	25.00
8a	SD-SA	Staff communicate well with patient	14	4.29	4	0.61	
d	SD-SA	Staff keeps patient informed	12	3.58	4	1.08	
e	SD-SA	Knowledgeable about condition	14	3.86	4	1.17	
9a	SD-SA	Usually physically comfortable	14	3.86	4	1.23	
b	SD-SA	Staff gives adequate medication to minimise pain	8	4.25	5	1.39	
c	SD-SA	Staff responds promptly when in pain	11	4.36	5	0.92	
d	SD-SA	Staff comforts when in emotional pain	12	4.25	5	1.22	
e	SD-SA	Staff respects needs and concerns	14	4.21	4.5	1.12	
f	SD-SA	Staff treats with respect and dignity	14	4.29	4.5	1.07	
g	SD-SA	Staff supportive to living in hospital	14	4.71	5	0.61	

Table 4.3 Survey results for Communication Group II - limited							
#	**Scale ***	**Topic**	**Count**	**Mean**	**Median**	**Stnd. Dev.**	**%yes**
1	VP-E	How patient feels lately	38	3.84	4	0.89	
2a	N-VO	Enjoy food	35	3.66	4	1.26	
b	N-VO	Enjoy taste of food	35	3.11	3	1.37	
c	N-VO	Portions large enough	33	3.76	4	1.25	
d	yes/no	Eat same foods regularly	36	1.25	1	0.44	75.00
e	yes/no	Meals served when hungry	35	1.34	1	0.48	65.71
3a	yes/no	Have own room	35	1.31	1	0.47	68.57
b	yes/no	Room large enough	37	1.08	1	0.28	91.89
c	yes/no	Room comfortable	37	1.00	1	0.00	100.00
d	yes/no	Allowed to decorate room	36	1.47	1	0.51	52.78
e	yes/no	Pleased with furniture	35	1.20	1	0.41	80.00
f	yes/no	Bed comfortable	36	1.14	1	0.54	91.67
g	N-VO	Sleeps enough	36	3.92	4	1.20	
h	N-VO	Room kept clean	33	4.33	5	0.82	
I	N-VO	Room kept comfortable temperature	35	4.03	4	1.25	
j	yes/no	Feel confined to room	37	1.65	2	0.48	35.14
4a	yes/no	Variety of activities	39	1.28	1	0.46	71.79
b	yes/no	Informed of activities	39	1.28	1	0.46	71.79
c	yes/no	Enjoy activities	35	1.26	1	0.44	74.29
d	yes/no	Staff tries hard to make act's enjoyable	37	1.14	1	0.35	86.49
e	yes/no	Go outdoors	40	1.28	1	0.45	72.50
f	yes/no	Enjoy going outdoors	39	1.13	1	0.41	89.74
g	N-VO	How often participates in activities	35	3.11	3	1.35	
5a	yes/no	Allowed to move freely in wheelchair	40	1.18	1	0.38	82.50
b	yes/no	Chair is comfortable	40	1.08	1	0.27	92.50
c	yes/no	Chair fixed promptly	25	1.48	1	0.77	64.00
d	N-VO	How often able to move about hospital	32	3.75	4	1.34	
6a	yes/no	Have visitors	39	1.10	1	0.31	89.74
b	yes/no	Staff present when with visitor	35	1.63	2	0.49	37.14
c	yes/no	Enough privacy when with visitor	35	1.11	1	0.32	88.57
d	yes/no	Enough time with visitor	34	1.12	1	0.33	88.24
e	N-VO	How often people visit	34	3.76	4	1.02	
7a	yes/no	Hospital overall pleasant	39	1.15	1	0.37	84.62
b	N-VO	Hospital kept clean	37	4.32	5	0.94	
c	N-VO	Hospital friendly between patients	38	3.97	4	0.91	
d	N-VO	Hospital friendly between patients/staff	38	3.97	4	1.05	
e	N-VO	Pleased with noise level	37	3.70	4	1.33	
f	S-VN	Describe noise level as...	38	2.76	3	0.68	
g	yes/no	Prefer quieter atmosphere	40	1.73	2	0.45	27.50
8a	SD-SA	Staff communicate well with patient	38	3.89	4	0.89	
b	SD-SA	Staff uses communication tool properly	4	3.75	3.5	0.96	
c	SD-SA	Communicate effectively without tool	18	4.06	4	0.94	
d	SD-SA	Staff keeps patient informed	36	3.53	4	0.97	
e	SD-SA	Knowledgeable about condition	35	4.26	4	0.74	
9a	SD-SA	Usually physically comfortable	39	4.10	4	0.72	
b	SD-SA	Staff gives adequate med. to min. pain	31	4.16	4	0.78	
c	SD-SA	Staff responds promptly when in pain	33	4.12	4	0.78	
d	SD-SA	Staff comforts when in emotional pain	29	3.93	4	0.96	
e	SD-SA	Staff respects needs and concerns	38	4.05	4	0.84	
f	SD-SA	Staff treats with respect and dignity	37	4.14	4	0.63	
g	SD-SA	Staff supportive to living in hospital	37	4.08	4	0.89	

Table 4.4 Survey Results for Communication Group III - families

#	Scale *	Topic	Count	Mean	Median	Stnd. Dev.	%Yes
1	VP-E	How patient feels lately	13	3.77	4	1.09	
2a	N-VO	Enjoy food	6	3.50	3.5	1.52	
b	N-VO	Enjoy taste of food	5	3.40	3	1.67	
c	N-VO	Portions large enough	5	3.80	5	1.64	
d	yes/no	Eat same foods regularly	6	1.33	1	0.52	66.67
e	yes/no	Meals served when hungry	6	1.17	1	0.41	83.33
3a	yes/no	Have own room	14	1.43	1	0.51	57.14
b	yes/no	Room large enough	14	1.14	1	0.36	85.71
c	yes/no	Room comfortable	14	1.00	1	0.00	100.00
d	yes/no	Allowed to decorate room	14	1.36	1	0.50	64.29
e	yes/no	Pleased with furniture	14	1.29	1	0.47	71.43
f	yes/no	Bed comfortable	14	1.00	1	0.00	100.00
g	N-VO	Sleeps enough	10	4.30	4	0.48	
h	N-VO	Room kept clean	14	4.79	5	0.58	
I	N-VO	Room kept comfortable temperature	14	4.07	4.5	1.14	
j	yes/no	Feel confined to room	14	1.79	2	0.43	21.43
4a	yes/no	Variety of activities	14	1.36	1	0.50	64.29
b	yes/no	Informed of activities	14	1.36	1	0.50	64.29
c	yes/no	Enjoy activities	10	1.00	1	0.00	100.00
d	yes/no	Staff tries hard to make act's enjoyable	13	1.23	1	0.44	76.92
e	yes/no	Go outdoors	14	1.00	1	0.00	100.00
f	yes/no	Enjoy going outdoors	14	1.00	1	0.00	100.00
g	N-VO	How often participates in activities	14	2.93	3	1.33	
5a	yes/no	Allowed to move freely in wheelchair	14	1.07	1	0.27	92.86
b	yes/no	Chair is comfortable	14	1.29	1	0.47	71.43
c	yes/no	Chair fixed promptly	11	1.55	2	0.52	45.45
d	N-VO	How often able to move about hospital	14	4.29	5	0.91	
6a	yes/no	Have visitors	NA	NA	NA	NA	NA
b	yes/no	Staff present when with visitor	14	1.14	1	0.36	85.71
c	yes/no	Enough privacy when with visitor	14	1.07	1	0.27	92.86
d	yes/no	Enough time with visitor	14	1.00	1	0.00	100.00
e	N-VO	How often people visit	14	4.71	5	0.47	
7a	yes/no	Hospital overall pleasant	14	1.14	1	0.36	85.71
b	N-VO	Hospital kept clean	14	4.50	5	0.85	
c	N-VO	Hospital friendly between patients	14	4.36	4	0.63	
d	N-VO	Hospital friendly between patients / staff	14	4.14	4	0.53	
e	N-VO	Pleased with noise level	14	3.93	4	0.83	
f	S-VN	Describe noise level as...	14	2.71	3	0.73	
g	yes/no	Prefer quieter atmosphere	14	1.71	2	0.47	28.57
8a	SD-SA	Staff communicate well with patient	14	3.79	4	1.12	
d	SD-SA	Staff keeps patient informed	14	4.00	4	1.11	
e	SD-SA	Knowledgeable about condition	14	4.71	5	0.47	
9a	SD-SA	Usually physically comfortable	14	3.71	4	0.99	
b	SD-SA	Staff gives adequate med. to min. pain	14	4.21	4	0.58	
c	SD-SA	Staff responds promptly when in pain	14	4.43	4.5	0.65	
d	SD-SA	Staff comforts when in emotional pain	11	4.18	4	0.60	
e	SD-SA	Staff respects needs and concerns	14	4.29	4	0.73	
f	SD-SA	Staff treats with respect and dignity	14	4.36	4	0.63	
g	SD-SA	Staff supportive to living in hospital	14	4.36	5	0.93	

Each table's results point out specific areas of care of which each communication group is particularly concerned. The results in Table 4.2 show that patients in communication Group I have problems with the hospital's food. Specifically, a substantial number of patients feel that they are eating the same foods on a regular basis and that meals are not served when patients are hungry. While these issues require further attention, a few areas of strength appear as well. For example, everyone in the group stated that the activities are enjoyable and that the staff has been supportive of their adjustment to living at the hospital.

Table 4.3 shows the results for communication Group II. Areas of concern for this group include: the amount of time to fix wheelchairs, serving food when patients are not hungry as well as patients eating the same foods on a regular basis. Additionally, some patients feel confined to their rooms, and feel they cannot decorate their rooms freely. The one overwhelmingly positive result, however, is the comfort of patients' rooms. Although these patients have positive feelings about a number of other areas of care at the hospital, no other area of care was as overwhelmingly strong as the comfort of patient rooms.

Table 4.4 presents the results of the family survey of patients in communication Group III. As in communication Group II, families expressed concerns about the amount of time it takes to have a wheelchair fixed and patients eating the same foods on a regular basis. Another area of care that may need more attention is the hospital's activities. Many respondents feel that they are neither informed about the activities nor that a variety of activities is available at the hospital. However, they did express their satisfaction with the patients' rooms and beds. This communication group raised other areas of strength and weakness, but there was no other obvious area of strength or weakness.

These three tables allow for simple comparison of each specific area of care included in the study. Tables 4.2, 4.3, and 4.4 cannot be compared to each other, but can be compared individually to Table 4.1. The statistical measurements in these tables are the basis for our conclusions, yet the qualitative interview results give deeper meaning to these quantitative results. The following section summarises results from the in-depth patient and family interviews.

Patient/Family Interview Results

The following passages are summaries from the six in-depth interviews we completed. The goal of these semi-structured interviews was to touch on some issues concerning quality of life at the hospital. In each interview, we simply let the respondent describe a typical day at the hospital as well as any general concerns he might have. We typically probed issues concerning the hospital's food, activities, staff, services, and patient comfort.

The patients we interviewed brought up a few concerns about the hospital's activities. They feel that a variety of activities is available but the same ones come up repetitively. Some of the activities that generated social interaction between the patients may have been terminated due to a lack of volunteers. For example, in the past a number of volunteers organised a sewing group that provided not only an enjoyable activity but also social stimulation for the patients. For reasons unknown to the patients this activity has stopped. In addition, patients feel that the weekends can become boring because the hospital does not provide a variety of things to do. This is especially the case for the many patients who do not receive visitors. During the week, a similar situation arises. Many patients go to bed by 6:30PM leaving other patients who wish to stay up later with little social interaction. Some patients feel they have little social interaction overall but often this is a conscious decision. Some patients choose to spend the day reading alone in the sitting area rather than their own room although the room is satisfactory. This conscious choice to be alone yet sit in a common area may seem confusing at first, but it is because some patients simply want the background noise of a populated area and different things at which to look.

The in-depth patient interviews also show some concern about the shortage of available nurses at the hospital. Continuously we found that patients feel the nurses do their best but sometimes have trouble completing the day's work. They feel the nurses would not finish their work if every bed in the ward were occupied. In addition, agency nurses do not know the hospital's routines and patients as well as the permanent nurses do. Because of this situation, the permanent nurses must help the agency nurses learn procedures throughout the day, which often causes routines to slow down and results in patients being late for appointments. However, patients do note that if an agency nurse works at the hospital for a long time, routines run smoothly.

In terms of the quality of food at the hospital, one patient in particular feels that the preparation is undesirable. The catering services prepare the food on a "cook and chill" system that often leaves the food overcooked. The twenty-one day rotation cycle offers little variation in the choice of foods, and the available alternatives often repeat. The patient does comment, however, that the presentation of food is satisfactory.

The in-depth family interviews offer some similar concerns but also show a multitude of areas patients did not bring up. One similar area of concern is that the availability of activities is limited, especially for patients who cannot communicate with the staff and for those patients who rarely receive visitors. Many activities occur in the afternoon when patients are often tired and unable to truly enjoy them or even participate in them. For patients who do not receive visitors, the hospital's staff often becomes their family and the hospital their home for the remainder of their life. Activities at the hospital are therefore the patients' only means of stimulation and entertainment. These patients also receive little social interaction, which families believe can leave the patient feeling isolated.

We also learned about a number of various concerns at the hospital that patients did not bring up during their interviews. One interviewee in particular noted that residents of the Goodman House, a separate building on hospital property, may feel isolated because they have difficulty accessing the main hospital. This problem is complicated by the fact that Goodman House residents have specially designed wheelchairs that are often difficult for a single person to manoeuvre. Another concern about the wheelchairs deals with the extended waiting period for new chairs to arrive. This was also a valid patient concern.

Some families feel that the staff is excellent, providing a large amount of care in a short amount of time. They note in particular prompt responses to patient's comfort and appearance as well as the ability to understand their patients. Families strongly feel that the staff looks after their relative well and that they treat patients at the Royal Hospital in a different manner than nurses at other hospitals treat their patients. However, families do show a concern for lack of staff. In particular, the staff does not have enough time to accomplish all their tasks during the day. Interviewing revealed that patients are not treated equally, perhaps because different patients need different treatment. In addition, some families feel that the patients should be allowed to eat dinner and stay up later.

The families do show disagreement in a few areas. Some families feel that the staff listens to concerns and complaints, where other families feel visitor's opinions are put aside. Some felt frustrated, asking repeatedly before any improvements materialise. However, other interviews reveal that the staff responds promptly to family concerns. Though the families agreed that the hospital is making changes, they differ about whether or not the hospital is actually improving. All interviews indicate that there is room for improvement and when compared to the survey results we can determine exactly which areas need improvement.

Patient Representative Meeting Observations

At the patient representative meeting we heard many concerns which hospital staff has already began improving. Many of the matters were specific problems that were unrelated to the focus of our study. One patient raised a concern about the food selection. The patient expressed worries about menu variety and stated that the same foods were offered every week. However, the most relevant idea discussed at the meeting was a suggestion for increasing stimulation in the lives of those who cannot communicate. A representative stated that stimulating these patients is the responsibility of those patients who can talk. Increasing social interaction is an imperative step in making the hospital a happier home for all patients.

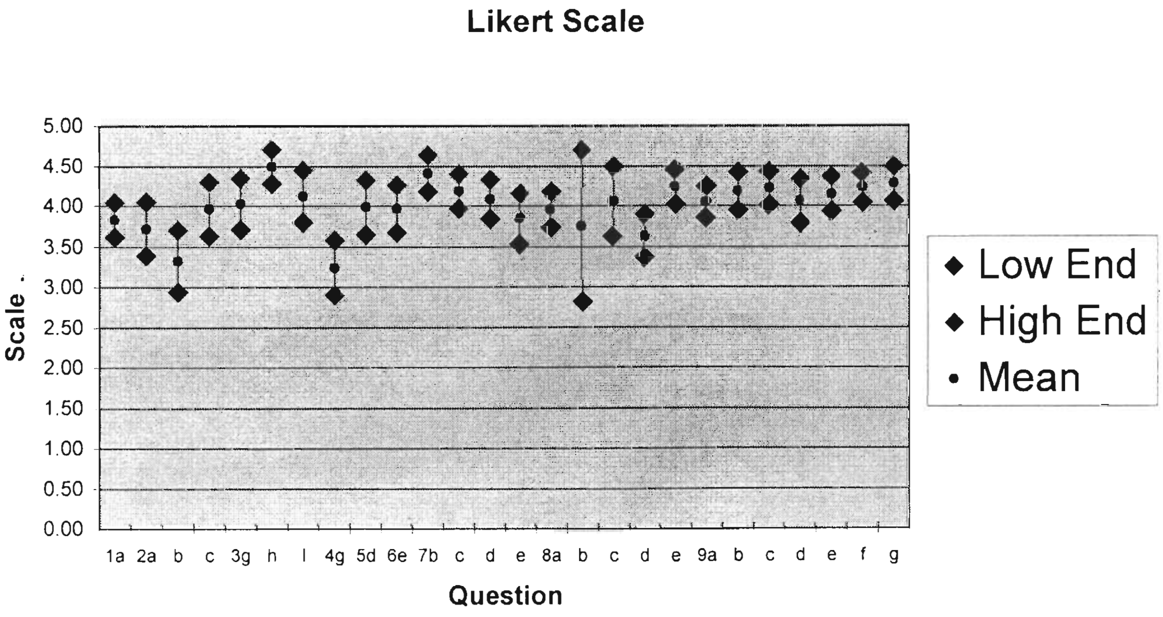
Since the results of the quantitative and qualitative data are directly comparable, we can gain a more accurate perspective of life at the hospital. Through careful analysis of the surveys and the in-depth interviews we can make applicable comparisons. The interviews not only bring up new areas of concern, but they also help to explain some of the reasons why patients responded similarly to various survey questions.

5.0 Analysis

We analysed the data using a 95% confidence level with no greater than plus or minus ten percent sampling error. This allowed us to compare the results of different questions with similar response scales. From these comparisons, we are able to differentiate between areas of care where the patients have concern. By determining which areas need immediate improvement we hope to improve the quality of life at the hospital.

In order to display the data more clearly, we have graphed the confidence intervals for the Likert scale response questions (Figure 5.1). This allows for comparison of the specific areas of care. Each bar represents the range from low end to high end of the confidence interval. The midpoint of each bar represents the mean response. In order to relate specific areas of care, we eliminated incomparable questions from the graph. For Figure 5.1 we have eliminated question 7f, which describes the noise level of the hospital because it is a negative response question.

Figure 5.1 Confidence Interval for Entire Sample (Likert Scale)



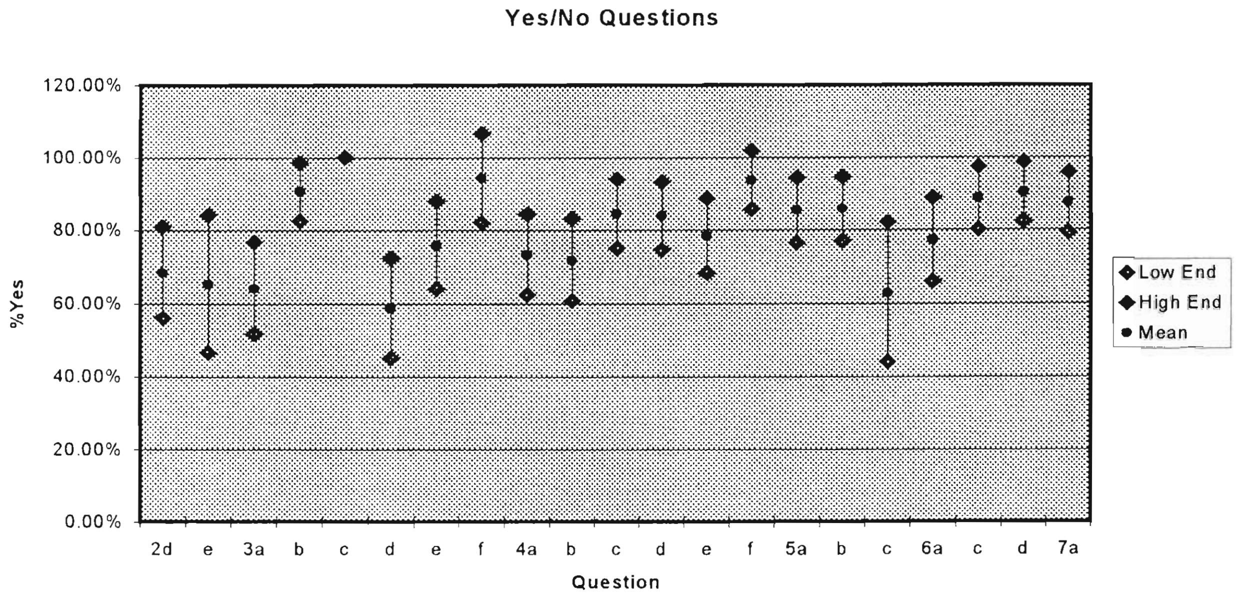
From the graph, we can confirm some of the concerns in the Data chapter. In particular, the results to questions 2b, 4g, and 8d scored significantly lower than questions in the same area of care. Question 2b regards the patients' enjoyment of the taste of the food. While overall patients enjoy the meals and are pleased with the portions, they are not always pleased with the taste. Question 4g asks how often patients participate in activities. The fact that patients only sometimes participate in activities can be a result of factors that we expand upon in Figure 5.2 questions 4a through 4f. Question 8d involves the staff informing the patients of their present condition. Although the staff received high scores in regards to promptness, respect, and support, the patients feel that they should be better informed about their present condition.

We also noticed some comparatively high scores from Figure 5.1. In particular, the results of questions 3h and 7b scored significantly higher than other questions in the same area of care. These questions regard the cleanliness of both the patient's room and the overall hospital.

Question 8b regarding the staff's use of patients' communication tools shows a large confidence interval. This is due to the fact that only four patients responded to this question. Since many patients we surveyed communicate with the staff verbally or through gestures, we therefore felt that the question was not applicable.

In order to gain a clear picture of life at the hospital we have also graphed the confidence intervals for the yes-or-no response questions in Figure 5.2. The overall structure of Figure 5.2 is the same as the structure of Figure 5.1 thus making the two graphs easier to compare. In Figure 5.2 we eliminated question 3j, which asks whether or not patients feel confined to their room, as well as question 7g which asks if patients prefer a quieter atmosphere because they are negative response questions. We also eliminated question 6b, which asks if the staff was present during visitation because the next question covers privacy in a more accurate manner.

Figure 5.2 Confidence Interval for Entire Sample (Yes-or-no)



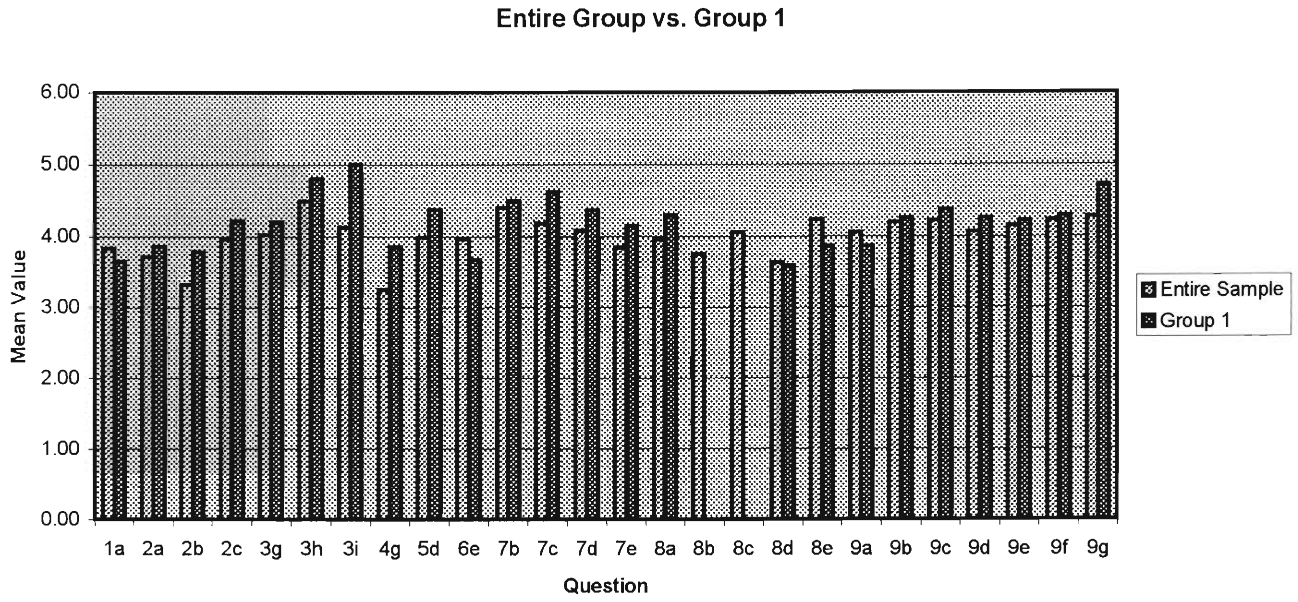
From Figure 5.2, we can confirm some positive areas of care at the hospital. The first overwhelming strength is that every respondent feels his room is comfortable. This result is shown by the simple dot for question 3c in Figure 5.2 as opposed to the bar representing the confidence interval for all other questions. Most results of the questions concerning the patient's room were very positive. This includes a large percentage of patients feeling that the bed is comfortable (question 3f) and that the room is large enough (question 3b). However, question 3d scored significantly lower than the other questions. This question dealt with the patient's ability to decorate his own room freely. Although the question had a large range of responses, the mean response showed that only 58.8% of the hospital's patients are able to decorate their rooms as they wish.

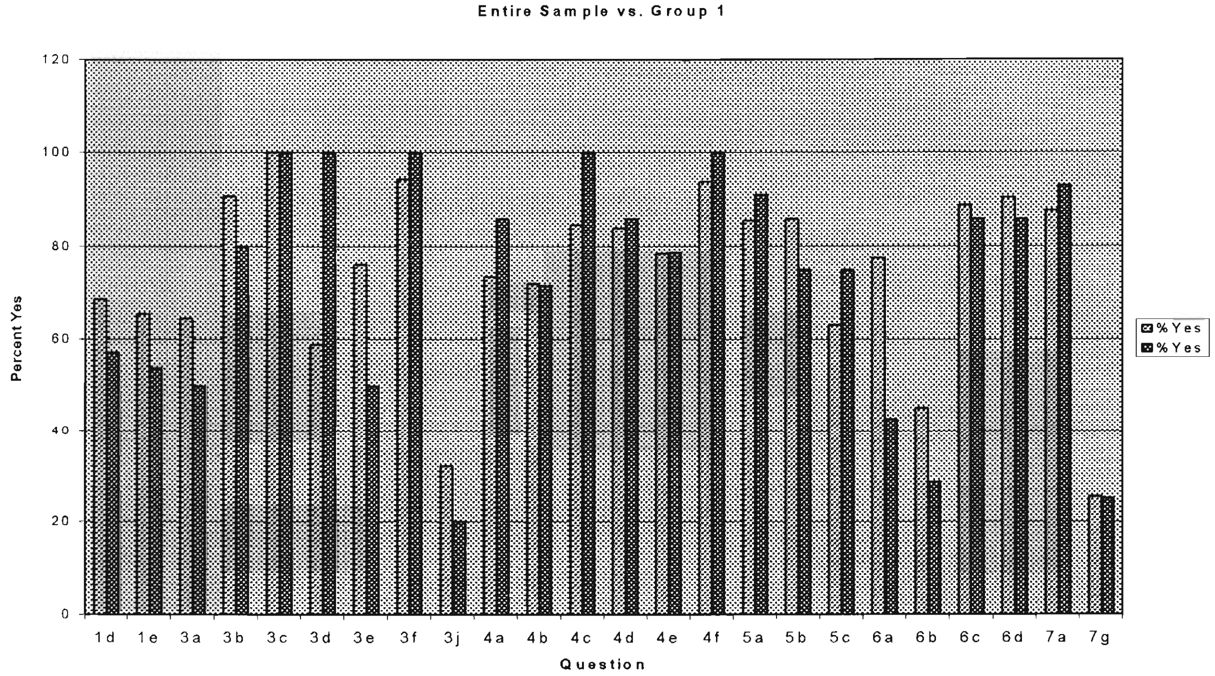
Also in terms of comfort, between 85.5% and 94.3% of the patients feel that their wheelchairs are comfortable (question 5b). Moreover, most patients are allowed to move about the hospital freely with their wheelchair (question 5a). However, the range of responses concerning the promptness of wheelchair repair varied greatly (question 5c). The number of responses to this question was significantly smaller in comparison to the number of responses to other wheelchair questions because some patients remarked that their wheelchair had never broken.

Overall, a high percentage of patients are satisfied with the hospital's atmosphere. Question 7a shows that 87.5% of patients feel that the hospital is a pleasant place. The high responses to questions 7c and 7d, describing how often the hospital's atmosphere is friendly between patients and between patients and staff, support the high percentage of people who feel that the hospital is a pleasant place. Most patients feel they have adequate privacy and time to spend with any visitors (questions 6c and 6d respectively). These are important factors when determining the patients' satisfaction with the hospital's environment.

Figures 5.3 through 5.5 compare mean responses of each communication subgroup to those of the entire sample. Figures 5.3, 5.4, and 5.5 display the mean responses to Likert scale questions for the entire sample and communication groups I, II, and III respectively.

Figure 5.3 Means of Entire Group vs. Group 1

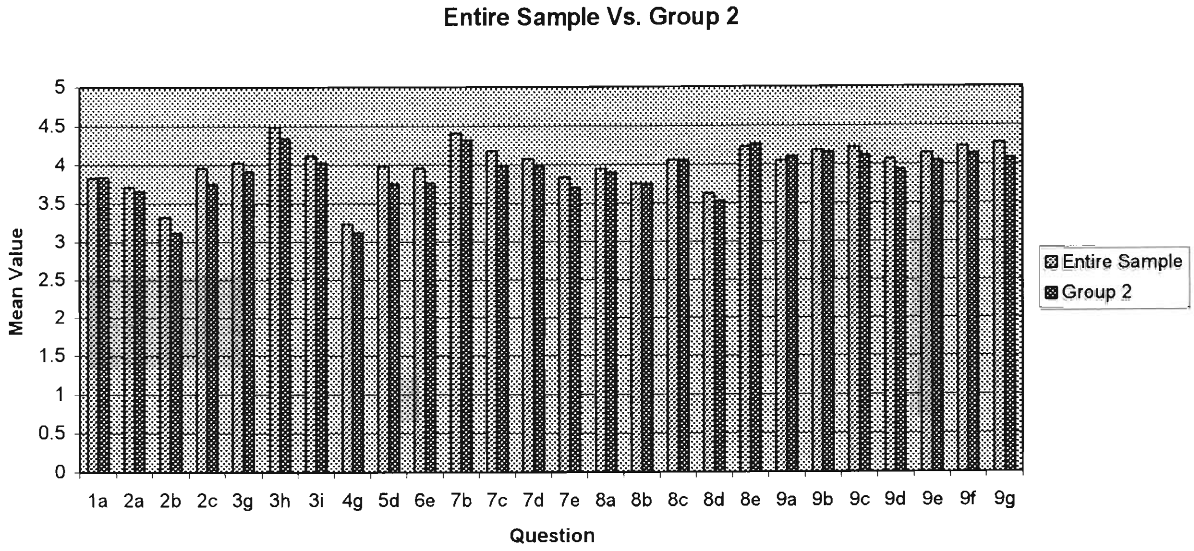

Entire Group vs. Group 1

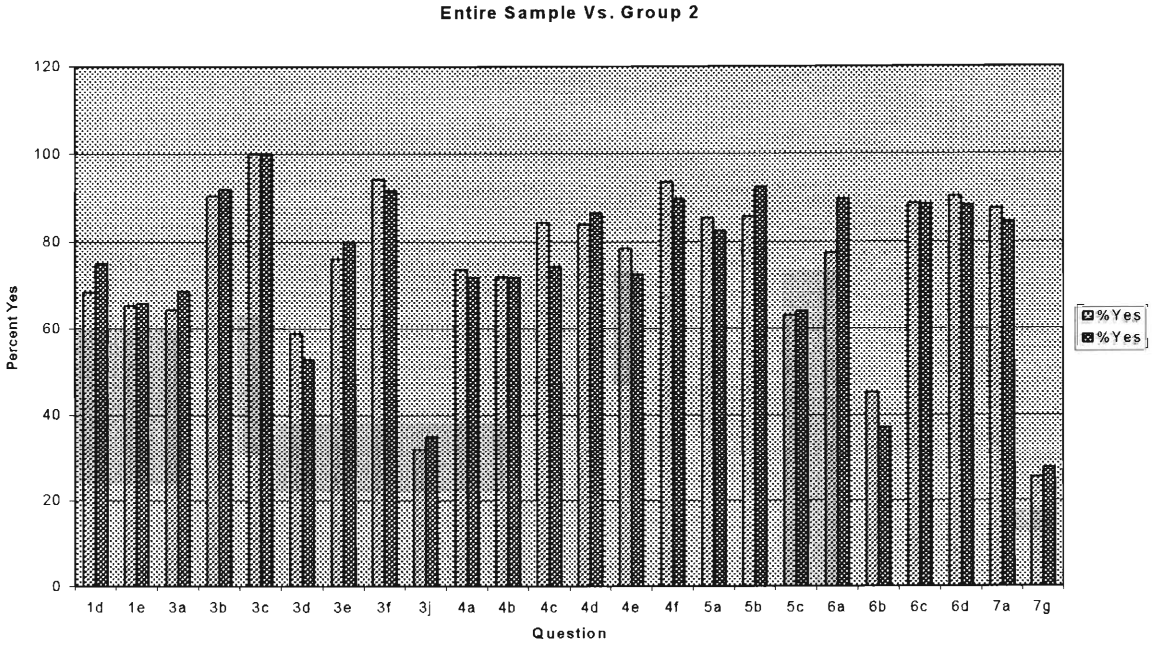

Entire Sample vs. Group 1

When comparing the mean responses of communication Group I to the entire sample we can easily see that the two are often very close in value. When the responses for the two groups differ, Group I's responses are higher nineteen out of twenty-four times for the Likert scale questions. This could be due to the fact that these patients have no trouble communicating their grievances verbally and therefore may receive more attention. They may also have a more positive outlook on life because many of them are very independent people, especially rehabilitation patients at the Day Hospital. Group I's responses to questions concerning the staff's ability to communicate with the patient and the patient's comfort are particularly close to the mean value of the entire sample. When comparing responses to yes-or-no questions, we see more variations. Some significant differences occur in questions 2d and 3j. Group I generally eats the same foods on a regular basis more so than the entire sample. This could be because they can communicate what they like and dislike. In addition, Group I feels less confined to their room than the entire sample probably because of better mobility.

While comparing the entire sample to the second communication group, Figure 5.4 shows that the second communication group coincided or was slightly below the mean for the entire group. The amount of time it takes to fix wheelchairs is a problem. Additionally, the biggest problems associated with this group are a large percentage of patients who eat when they are not hungry, are unable to decorate their room freely, and feel confined to their room. The patient's inability to decorate the room and the feeling of confinement could be the result of a lack of communication between patients in Group II and the staff. Some of these patients cannot communicate their likes and dislikes although this group did give the staff high marks. While these marks were high, they were still lower than the overall mean.

Figure 5.4 Entire Sample Vs. Group 2

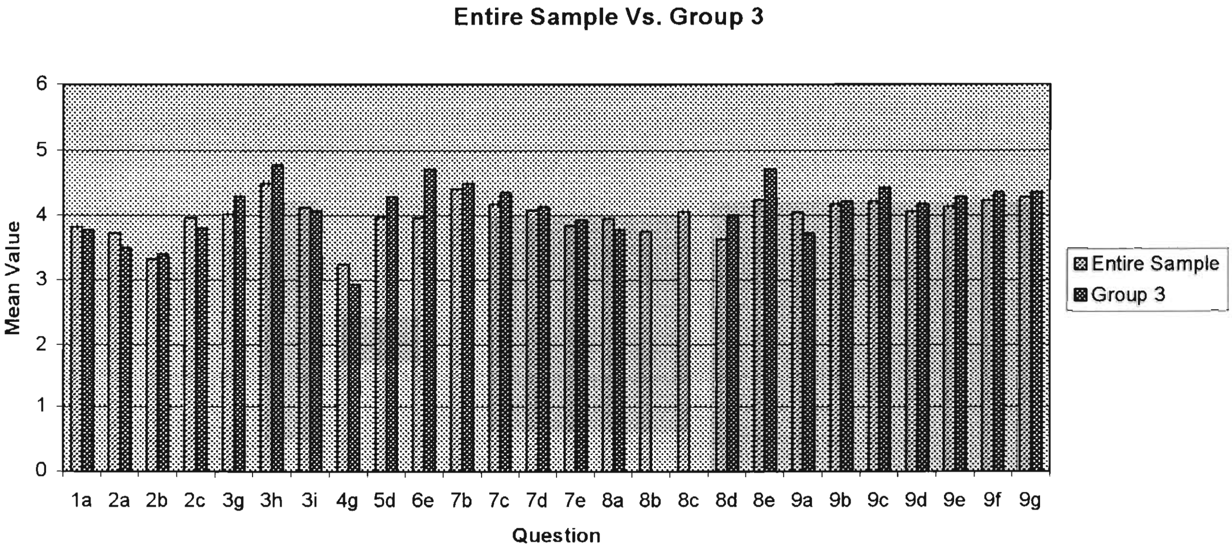


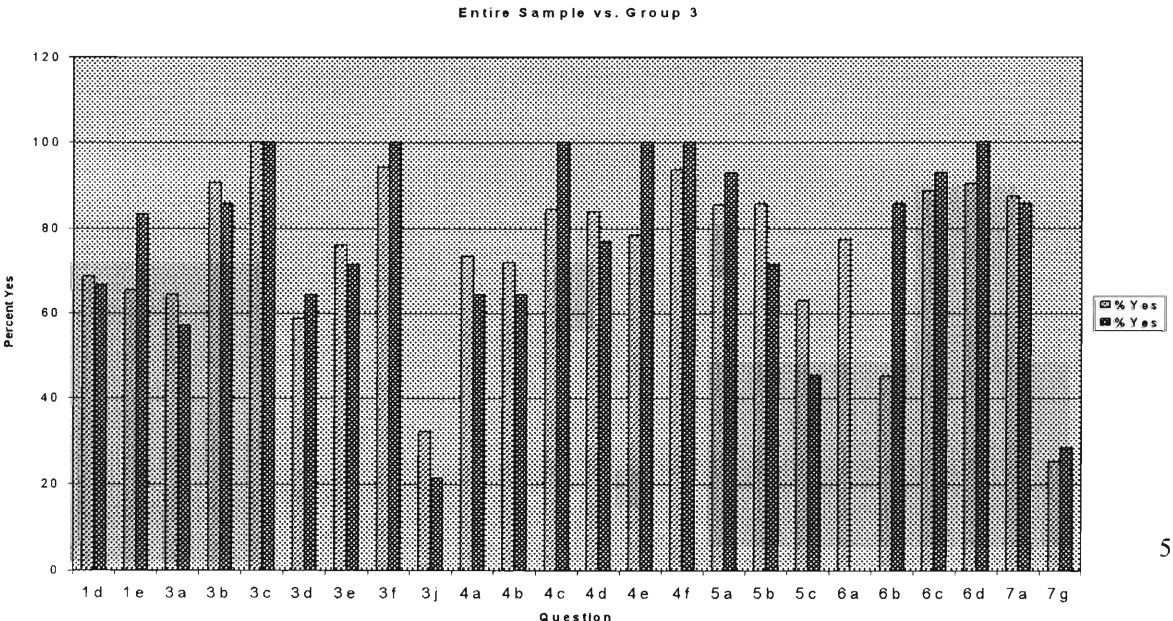


The second group made up a majority of the overall sample, which explains why most of the responses are close to the overall mean. The questions that involved communication between the staff and the patient are slightly lower than the overall mean, which is due to the communication problems some of these patients have. If they cannot communicate the problems they are having, their quality of life will be slightly lower than the overall group. In general, the second group and the entire sample are very close.

The third communication group had very mixed responses when compared to the overall mean as can be seen in Figure 5.5. One factor that can make up for the wide range in the responses is substitution bias. Since we were not able to survey the patients directly, we surveyed their family members. The families we interviewed were as close to the patients' perceptions as we could get. However, because of this bias, some of these answers may be skewed due to personal experiences rather than because of something that happened to the patient. Some families expect miracles when their relatives are brought to the hospital, while others are just delighted that they do not have to care for their loved one anymore. The staff has to maintain a delicate balance in order to please everybody.

Figure 5.5 Entire Sample Vs. Group 3





The third group had several questions that are not comparable to the overall sample due to a lack of sample within the group. Most of the patients in the third group do not eat food therefore making questions concerning the food irrelevant. Questions concerning the patient's ability to communicate using an augmentative communication tool also do not apply. Another bias is evident because we only surveyed families who visit on a regular basis. This was due to time constraints and availability of family members. The question about the visitors is also biased because we were surveying visitors. The results for this question, shown in Figure 5.5 Question 6e, show that more people visit the third group than the other groups. This may be the case but because there is a bias, it cannot be stated as fact.

For the most part, the third group gave the staff high marks, higher than the overall mean. The staff communicates well with the families, keeping them better informed about their loved one's condition than the overall mean. One issue that does draw concern is how often these patients participate in activities. It was significantly lower than the overall mean. Families expressed that the patients did not get enough stimulation outside the normal therapy sessions. Another problem was the amount of time it takes for wheelchairs to be repaired. Only 45% of the families from the group stated that the wheelchairs were fixed promptly. This is a significant deviation from the overall group. The lack of communication between staff and family or lack of willingness to listen to family members could cause this discrepancy. When comparing the yes-or-no questions, families feel the patients are less confined to their rooms than the entire sample. This can be due to the fact that patients in the third group receive visitors who take them from their room regularly. A discrepancy appears regarding patient participation in activities and enjoying them. All respondents in Group III enjoy the activities yet only participate sometimes as shown by Figure 5.5.

Quantitative and Qualitative Comparisons

Overall, the in-depth interviews supported the most significant concerns of the survey. Specifically, patients and families gave examples of why they responded to survey questions in a certain manner. These examples expanded our knowledge of life at the hospital and gave us additional insight concerning issues at the hospital that need further investigation.

Patients and families alike both elaborated on two concerns that overlapped with the survey results. These included the amount of time it takes to fix wheelchairs and the availability of activities at the hospital. Not only is the time it takes to fix the wheelchairs a problem but also waiting for new wheelchairs can become a timely process. Waiting for a wheelchair is perhaps one of the most frustrating problems a patient can have. The wheelchair is his means of mobility and entertainment. Therefore, obtaining prompt wheelchair repair service is a valid patient desire. In terms of the availability of activities, both patient and family in-depth interviews revealed that a variety is not available, and the activities are not scheduled properly. This could be the reason the respondents in the third communication group stated that their relatives participate only "sometimes" in the hospital's activities.

Additionally, the concerns patients expressed regarding the hospital's food are similar to the survey results. In particular, patients pointed out that the preparation of the food is poor which could explain the low survey response regarding the taste of the food. They spoke very highly of the staff, noting that they always do the best they can for their patients. This supports the high survey results for questions regarding the staff.

However, families had some different perceptions of the staff. While they continuously felt that the staff worked very hard with the patients, they showed some concern that the staff does not keep them as informed about their relative as they would like. This could explain why the response to question 8d regarding the staff informing the patient or family about present conditions was lower than results to other questions concerning the staff.

A few concerns also arose from both the family and patient in-depth interviews that the survey did not target. For example, the interview results showed concern for a shortage of available staff. Although the survey showed that the staff is very responsive, no question specifically targeted the number of available staff members. Families also brought up the fact that some patients feel isolated in the hospital and need more social stimulation. At the patient representative meeting, one patient suggested increasing interaction between patients of varying communication levels to prevent the feeling of isolation. The survey did not directly assess this area, but it is a valid point that requires further attention.

6.0 Conclusions

From our analysis, we have identified some areas of strength and weakness at the hospital. Overall, the hospital is maintaining a high quality of life for the patients. It is very important to note that no areas of care at the hospital were exceedingly bad. In fact, the hospital should be proud of the job they are doing to maintain the cleanliness of the overall hospital and the pleasant and friendly atmosphere.

The staff should be congratulated for their high scores on the survey. Most of the patients consider the staff thoughtful, caring, and always attentive to the best interest of the patient. Staff members communicate well with the patients, keeping them informed about their conditions. They treat the patients as equals, which is very important because the patients receive the respect and dignity due to them, and their needs and concerns are addressed in a prompt manner. For the most part, the staff gets along well with the patients and their families. They also have been supportive of families' adjustments when their loved one begins living at the hospital. This change can often be an extreme one. Overall, the staff is doing a good job and deserves commendation for high quality work.

The patients and families also rated the hospital's atmosphere high. Most of the patients and families consider the hospital a pleasant place and are pleased with the cleanliness of the patients' rooms and the overall hospital. All of the patients found their rooms quite comfortable and most agreed that their beds were also comfortable. Most of the patients agreed that they got along with other patients. The noise level at the hospital was considered moderate, which most patients and families liked. Results to question 7g showed that most patients would not prefer a quieter atmosphere. Since most patients and families are happy with the overall hospital atmosphere, the procedures and attitudes that contribute to the atmosphere should be maintained at the high level of quality at which they are currently operating.

While many areas of the hospital are operating a high level, other areas need improvement. Some patients stated they felt confined to their rooms. For many patients, the hospital is their permanent place of residence, and they should be able to roam about the hospital as if it were their home. A lack of staffing or poor scheduling of on duty staff may be a partial cause of this problem. Many patients and families expressed concern over this lack of staff. The inability of patients to decorate their rooms was another concern. If the hospital is a patient's home, then the patients feel they should be able to decorate the room freely.

An additional problematic area is wheelchair repair. Some patients and families expressed concerns about the length of time that it took to get wheelchairs fixed and fitted. This could also be the reason why some patients feel confined to their rooms. For nearly all patients, the wheelchair is their means of mobility and it enables them to get to all of their necessary appointments during the day. If a patient continuously waits for his wheelchair to be fixed, his satisfaction will decrease rapidly. One area that needs more attention is the ability of the staff to keep the patients or families updated on the patients' current condition. Communication is an essential aspect of high quality of life at the hospital and continuous updates are necessary to keep the patients and families satisfied.

Another cause for concern is the food. While many patients considered the food portions large enough, they expressed concern about a lack of variety in the menu. Many patients said they eat the same foods on a regular basis. The taste, although not bad, could be improved as well. The biggest problem with the food, however, was the time at which meals are served. Many patients expressed concern that the meals, especially dinner, are served too early. With dinner served at 4:30PM, two hours after tea and only four hours after lunch, the patients expressed a desire to eat dinner later in the evening. Some respondents felt this was due to lack of staffing.

Although there are a number of areas that could use some improvement to enhance quality of life, a few areas need concentrated attention. The following section gives some suggestions for making these improvements.

Recommendations

It seems that additional staffing or a restructuring of the staff's schedule could improve many weak areas of care. Rescheduling may be more economical than hiring. The in-depth interviews have revealed concerns that the staff is too busy at times and has trouble completing all tasks. By rescheduling staff, people would be available to serve supper later in the day and to stimulate those patients who feel confined to their room. We recommend taking a closer look at the patient's daily schedule, paying particular attention to the meal serving times. We also suggest improving wheelchair repair by speeding up the process. The current system for fixing wheelchairs is not sufficient and needs improvement. Every day that a patient is without a properly working wheelchair, life becomes more difficult.

The current staff is doing all they can to make the quality of life high, and according to the study, they are achieving commendable results. One area the staff has to stress continually is communication. Communication is an essential aspect in quality of life at the hospital and improved communication will only increase the overall quality of life. We have found that staff is very respectful of the patients, but they should better inform patients of their present conditions. In addition, the staff should ensure that they are giving necessary attention to all patients including those cannot communicate.

We also recommend increasing patient stimulation, especially for those patients who cannot communicate or who do not receive visitors. This can be done through increasing activities that provide entertainment and social interaction. Staff should not only inform patients of the activities, but should also encourage participation. Staff should also encourage patients with verbal ability to interact with those who cannot talk. It may be possible to increase stimulation by rescheduling the activities. Some patients are unable to participate because, for example, they are asleep or because they are unable to commute to the main hospital from the Goodman House. One way of minimising isolation is to vary the times and locations at which the activities take place.

This study revealed a number of areas that need improvement at the Royal Hospital for Neuro-disability. By looking more closely at these areas and implementing either the described suggestions or alternative improvements, the hospital's quality assurance department will be able to increase the patients' quality of life.

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8.0 Appendices

Appendix A - Royal Hospital for Neuro-disability Organisation

The Royal Hospital for Neuro-disability (RHNd) treats patients with severe neurological disorders that affect quality of life. Patients at the hospital suffer from numerous neurological conditions including multiple sclerosis, Huntington's disease, Parkinson's disease, cerebral palsy, and various types of brain injuries. The severity of these conditions changes the way many patients function, making it extremely difficult for them to live independently in the outside world. Due to the seriousness of the conditions, over three-quarters of the hospital runs on an in-patient care basis while the remaining quarter is an outpatient rehabilitation centre. Many in-patients and outpatients do not pay for the care they receive at the RHNd because they are funded under either Britain's National Health Service (NHS) which provides free or other private organisations.

The severity of the disorders at the Royal Hospital requires specialised care for each individual patient. Psychiatric consult, occupational therapy, and dietary information are part of each patient's treatment. However, registered nurses provide the daily care necessary for the hospital's inpatients. These nurses must not only learn to interact with the patients but also to communicate with them so that the patients can learn about their condition and adjust to it.

Learning to communicate effectively with any neurological patient, as the nurses and occupational therapists at the RHNd have done, can be extremely difficult. Most patients at the RHNd have some level of verbal communication problem. Whether they do not know what they want to say or they cannot control the physical mechanism to express it, verbal communication is limited. Communication levels at the Royal Hospital can be divided into three subgroups: those who can communicate verbally, those who have limited verbal ability or communicate by blinking an eye, using voice boxes, or gesturing to letter boards, and those who are unable to communicate at all. This inability to communicate verbally combined with the seriousness of the disorder itself cause a great emotional strain for the patient and his family. Identifying common problem areas of hospital procedures for improvements can help to diminish this emotional strain and raise the quality of life for these patients.

Liaison:
Marietta Clegg, Quality Manager
Royal Hospital for Neuro-disability
West Hill
Putney
London SW15 3SW
Phone: 0181 780 4520
Fax: 0181 780 4501

Appendix B - Suggestions for Further Studies

As we have previously stated, patient satisfaction surveys are becoming more widespread because many healthcare services believe in the importance of the perception of quality (Nelson, 1990). In addition, these providers are beginning to use survey results more significantly to measure satisfaction. Haskell and Brown (1998) state that a survey can determine how well the staff of a hospital meet the expectations and needs of the patients. Patients' feedback is currently redefining health care services (Huff, 1998).

In order to maintain a high quality of life at the hospital, it is important to obtain patient feedback on a regular basis. Repetition of a reliable and consistent study in the future can identify the ability of the hospital to respond to patients' complaints and concerns (Haskell & Brown, 1998). This will help to further the performance of the improvement process and to reach the long-term goal of increasing client satisfaction at the hospital. Comparing results of studies completed in different time frames will show whether improvement procedures were successful. Repetition will also determine the reliability and consistency in the administration of the study. A reliable survey can be conducted at two different time points without affecting the results. Gaining multiple perspectives through qualitative methods has proved our survey valid. Multiple implementations can verify the instrument's reliability.

We recommend the following as future project descriptions:

Follow-up to Patient Satisfaction at the Royal Hospital for Neuro-disability

This project involves the implementation of a future study in which the survey instrument remains the same, thus keeping the results comparable. When analysing the data, the study team will be able to evaluate the hospital's ability to respond to patient concerns, which is a significant component of quality care. Utilising the same instrument will also allow more time for implementation and the possibility of decreasing sampling error significantly. Research for this project will include previous studies and hospital improvement procedures.

Assessing the Quality of Life of Patients Who Cannot Communicate

This project will concentrate on patients who cannot communicate their concerns with the staff. This project will be very difficult and will involve very different techniques than used in other studies. It will be impossible to conduct surveys and interviews with the patients. The team can perhaps shadow the patients and gain perceptions from family in the forms of interviews and mail-back surveys. Research for this project will include quality care and qualitative social science methods such as participant observation.

Patient Satisfaction at the Ward Level

This project will include wards that have been receiving repetitive complaints. Concentrating on a smaller population will allow for precisely pinpointing problems. The team will be able to determine what needs to be done to make improvements based on patients and staff interviews as well as extensive research of the specific areas of quality care.

Patient Satisfaction with Wheelchairs

Choosing one component of patient life such as wheelchairs will allow for pinpointing problems more accurately. The team can interview patients who have had problems in the area to determine strengths and weaknesses. The areas researched and investigated can include chair comfort, accessibility, mobility, prompt repair, and the prescription process. Similar projects can be conducted for the quality of meals, hospital activities, or any area of care in need of improvement.

Appendix C - Patient Satisfaction Survey Instrument

Surveyor ____ Survey # ___ Time ____ Gender M F

Ward ____ Subgroup # ___ Nurse Present Y N Length of Stay ____

Diagnosis _________ Date _______

1.	If we were to give you a scale from 1-to-5, where 1 is very poor and 5 is excellent, how would you say you've been feeling lately......................................	VP 1	P 2	F 3	G 4	E 5	DKNA 6
	(use response card depending on patient ability)						

2. Now I am going to ask you a few questions regarding life here at the hospital. The first area I would like to concentrate on is the food.

First, on a scale from 1-5, where 1 is never and 5 is very often, please tell me what number reflects your views to the following questions.
(use card depending on patient ability)

		N	R	S	O	VO	DKNA
a.	How often do you enjoy the food you eat at the hospital...............	1	2	3	4	5	6
b.	How often do you enjoy the taste of the food....	1	2	3	4	5	6
c.	How often are the portions of food large enough...	1	2	3	4	5	6

Now I have a few yes-and-no response questions.
(explanation of responses depends on communication tool).

d.	Do you eat the same foods on a regular basis?	Y	N	DKNA
e.	Are meals served at times when you are hungry?	Y	N	DKNA

3. Now, the questions will concentrate on the comfort of your room. Please answer with yes or no.

a.	Do you have your own room?	Y	N	DKNA
b.	Is your room large enough?	Y	N	DKNA
c.	Is your room comfortable?	Y	N	DKNA
d.	Are you allowed to decorate your room the way you like.....	Y	N	DKNA
e.	Are you pleased with the furniture in your room...	Y	N	DKNA
f.	Is your bed comfortable?	Y	N	DKNA

Now, on a scale from 1-5, where 1 is never and 5 is very often, please tell me what number reflects your views to the following questions.
(use card depending on patient ability)

		N	R	S	O	VO	DKNA
g.	How often do you get an adequate amount of sleep...	1	2	3	4	5	6
h.	How often is your room kept clean...........	1	2	3	4	5	6
i.	How often is your room kept at a comfortable temperature....................	1	2	3	4	5	6

The next question can be answered with yes or no.

j.	Do you feel confined to your room?	Y	N	DKNA

4. Next, I will be asking you yes-and-no response questions regarding the activities at hospital.

a.	Is there a variety of activities at the hospital?	Y	N	DKNA
b.	Are you informed of planned activities?	Y	N	DKNA
c.	Do you enjoy the activities the hospital provides?	Y	N	DKNA
d.	Does the staff try hard to make the activities enjoyable?	Y	N	DKNA

e. Do you go outdoors? Y N DKNA

f. Do you enjoy going outdoors? Y N DKNA

g. Now, on a scale from 1-5, where 1 is never and 5 is very often, how often do you leave your room to participate in activities............
(use card depending on patient ability)

N	R	S	O	VO	DKNA
1	2	3	4	5	6

5. Now I will ask you a few yes-and-no response questions about your wheelchair.

a. Are you allowed to move about the hospital with your wheelchair? Y N DKNA

b. Is your wheelchair comfortable? Y N DKNA

c. If your wheelchair breaks, is it fixed promptly? Y N DKNA

d. On a scale from 1-5, where 1 is never and 5 is very often, how often are you able to move freely about the hospital with your wheelchair..............
(use card depending on patient ability)

N	R	S	O	VO	DKNA
1	2	3	4	5	6

6. The next series of questions will regard the time you spend with people who visit you. They are yes-and-no questions.

a. Do people come to visit you? Y N DKNA

b. Is staff present when you are with a visitor? Y N DKNA

c. Is there adequate privacy when you visit with someone? Y N DKNA

d. Do you receive adequate time when you visit with someone? Y N DKNA

e. On a scale from 1-5, where 1 is never and 5 is very often, how often do people come to visit you.

N	R	S	O	VO	DKNA
1	2	3	4	5	6

7. The next series of questions will deal with the overall atmosphere of the hospital. The next question can be answered with a yes or no answer.

a. Overall, is the hospital a pleasant place? Y N DKNA

Now, on a scale from 1-5, where 1 is never and 5 is very often, please tell me what number reflects your views to the following questions (use card depending on patient ability)

		N	R	S	O	VO	DKNA
b.	How often is the hospital kept clean.........	1	2	3	4	5	6
c.	How often is the hospital's atmosphere friendly between patients...........	1	2	3	4	5	6
d.	How often is the hospital's atmosphere friendly between patients and staff........	1	2	3	4	5	6
e.	How often are you pleased with the noise level.....	1	2	3	4	5	6

		S	Q	M	N	VN	DKNA
f.	Now, on a scale from 1-5, describe the noise level at the hospital, where 1 is silent, and 5 is very noisy........	1	2	3	4	5	6

g. The next question can be answered with a yes or no answer. Would you prefer a quieter atmosphere? Y N DKNA

8. The next series of questions will concern the staff's ability to communicate with you. The scale will be slightly different for these questions.
On a scale from 1 to 5, where 1 means that you strongly disagree and 5 means that you strongly agree, please tell me which number reflects your views regarding the following statements.
(use card depending on patient ability)

		SD	D	N	A	SA	DKNA
a.	The staff communicates effectively with you.....	1	2	3	4	5	6
b.	The staff utilises your communication tools properly....	1	2	3	4	5	6
c.	You can communicate effectively to the staff without the aid of your communication tool....	1	2	3	4	5	6
d.	The staff keeps you informed about your present condition.....	1	2	3	4	5	6
e.	You are knowledgeable about your condition....	1	2	3	4	5	6

9. The last series of questions will concern your comfort.
On a scale from 1 to 5, where 1 means that you strongly

disagree and 5 means that you strongly agree, please tell me which number reflects your views regarding the following statements
(use card depending on patient ability)

		SD	D	N	A	SA	DKNA
a.	You are usually physically comfortable......	1	2	3	4	5	6
b.	The staff gives you adequate medication to minimise pain......	1	2	3	4	5	6
c.	The staff responds promptly when you are in pain...	1	2	3	4	5	6
d.	The staff comforts you when you are in emotional pain......	1	2	3	4	5	6
e.	The staff respects your needs and concerns....	1	2	3	4	5	6
f.	The staff treats you with respect and dignity....	1	2	3	4	5	6
g.	The staff has been supportive of your adjustment to living in the hospital....	1	2	3	4	5	6

Appendix D - Family Satisfaction Survey Instrument

Surveyor ____ Survey # ___ Time ____ Gender M F

Ward ____ Subgroup # III Nurse Present Y N

Relation to Patient ____________ Length of Stay ____

Diagnosis ________ Date _______

Give letter to participant.

		VP	P	F	G	E	DKNA
1.	If we were to give you a scale from 1-to-5, where 1 is very poor and 5 is excellent, how would you say _______ has been feeling lately......................................	1	2	3	4	5	6

2. Now I am going to ask you a few questions regarding life here at the hospital. The first area I would like to concentrate on is the food.

   First, on a scale from 1-5, where 1 is never and 5 is very often, please tell me what number reflects your views to the following questions.

		N	R	S	O	VO	DKNA
a.	How often does ______ enjoy the food he/she eat at the hospital................	1	2	3	4	5	6
b.	How often does _____ enjoy the taste of the food....	1	2	3	4	5	6
c.	How often are the portions of food large enough...	1	2	3	4	5	6

Now I have a few yes-and-no response questions.

d.	Does ______ eat the same foods on a regular basis?	Y	N	DKNA
e.	Are meals served at times when _____ is hungry?	Y	N	DKNA

3. Now, the questions will concentrate on the comfort of _____'s room. Please answer with yes or no.

a.	Does _____ have his/her own room?	Y	N	DKNA
b.	Is the room large enough?	Y	N	DKNA
c.	Is the room comfortable?	Y	N	DKNA
d.	Are you allowed to decorate the room the way you like.....	Y	N	DKNA
e.	Are you pleased with the furniture in the room...	Y	N	DKNA
f.	Is _____'s bed comfortable?	Y	N	DKNA

Now, on a scale from 1-5, where 1 is never and 5 is very often, please tell me what number reflects your views to the following questions.

		N	R	S	O	VO	DKNA
g.	How often does _____ get an adequate amount of sleep..	1	2	3	4	5	6
h.	How often is the room kept clean...........	1	2	3	4	5	6
i.	How often is the room kept at a comfortable temperature...................	1	2	3	4	5	6

The next question can be answered with yes or no..

j.	Do you feel that ____ is confined to his/her room?	Y	N	DKNA

4. Next, I will be asking you yes-and-no response

questions regarding the activities at hospital.

a. Is there a variety of activities at the hospital? Y N DKNA

b. Are you informed of planned activities? Y N DKNA

c. Does ____ enjoy the activities the hospital provides? Y N DKNA

d. Does the staff try hard to make the activities enjoyable? Y N DKNA

e. Does _____ go outdoors? Y N DKNA

f. Does _____ enjoy going outdoors? Y N DKNA

g. Now, on a scale from 1-5, where 1 is never and 5 is very often, how often does _______ leave his/her room to participate in activities...........

N	R	S	O	VO	DKNA
1	2	3	4	5	6

5. Now I will ask you a few yes-and-no response questions about his/her wheelchair.

a. Are you allowed to move about the hospital with _____ in his/her wheelchair? Y N DKNA

b. Is ______'s wheelchair comfortable? Y N DKNA

c. If ______'s wheelchair breaks, is it fixed promptly? Y N DKNA

d. On a scale from 1-5, where 1 is never and 5 is very often, how often are you and ______ able to move freely about the hospital with his/her wheelchair..............

N	R	S	O	VO	DKNA
1	2	3	4	5	6

6. The next series of questions will regard the time you spend visiting ______ at the hospital. They are yes-and-no questions.

b. Is staff present when you are visiting? Y N DKNA

c. Is there adequate privacy when you visit? Y N DKNA

d. Do you receive adequate time when you visit? Y N DKNA

e. On a scale from 1-5, where 1 is never and 5 is very often, how often do people come to visit __________?

N R S O VO DKNA

1 2 3 4 5 6

7. The next series of questions will deal with the overall atmosphere of the hospital. The next question can be answered with a yes or no answer.

a. Overall, is the hospital a pleasant place? Y N DKNA

Now, on a scale from 1-5, where 1 is never and 5 is very often, please tell me what number reflects your views to the following questions

		N	R	S	O	VO	DKNA
b.	How often is the hospital kept clean.........	1	2	3	4	5	6
c.	How often is the hospital's atmosphere friendly between patients...........	1	2	3	4	5	6
d.	How often is the hospital's atmosphere friendly between visitors and staff........	1	2	3	4	5	6
e.	How often are you pleased with the noise level.....	1	2	3	4	5	6

		S	Q	M	N	VN	DKNA
f.	Now, on a scale from 1-5, describe the noise level at the hospital, where 1 is silent, and 5 is very noisy........	1	2	3	4	5	6

g. The next question can be answered with a yes or no answer. Would you prefer a quieter atmosphere? Y N DKNA

8. The next series of questions will concern the staff's ability to communicate with you. The scale will be slightly different for these questions.
On a scale from 1 to 5, where 1 means that you strongly disagree and 5 means that you strongly agree, please tell me which number reflects your views regarding the following statements.
(use card depending on patient ability)

		SD	D	N	A	SA	DKNA
a.	The staff communicates effectively with you.....	1	2	3	4	5	6
d.	The staff keeps you informed about ______'s present condition.....	1	2	3	4	5	6
e.	You are knowledgeable about _____'s condition....	1	2	3	4	5	6

9. The last series of questions will concern ______'s comfort.

On a scale from 1 to 5, where 1 means that you strongly disagree and 5 means that you strongly agree, please tell me which number reflects your views regarding the following statements
(use card depending on patient ability)

		SD	D	N	A	SA	DKNA
a.	_____ is usually physically comfortable……	1	2	3	4	5	6
b.	The staff gives _____ adequate medication to minimise pain……	1	2	3	4	5	6
c.	The staff responds promptly when ____ is in pain…	1	2	3	4	5	6
d.	The staff comforts ______ when he/she is in emotional pain……	1	2	3	4	5	6
e.	The staff respects ______'s needs and concerns….	1	2	3	4	5	6
f.	The staff treats ______ with respect and dignity….	1	2	3	4	5	6
g.	The staff has been supportive of the family's adjustment to having a family member in the hospital….	1	2	3	4	5	6

Appendix E - Reflections

Upon arriving at the Royal Hospital for Neuro-disability, we did not know what to expect. All of the planning in the world could not prepare us. Although it seemed to be a sad life at first, we quickly saw happiness in many patients' demeanours. The ability to walk, to move, and sometimes even to talk may have been gone, but the sense of humour, the smile, and the ability to brighten one's day were definitely present. For a place where disability is the one common denominator linking the patients, the RHNd is full of exciting life. Each moment we had with the patients has been an enjoyable and memorable one. Over the course of our seven week study, we have made many good friends, heard many great stories, and learned so much thus making this project a valuable experience for us. Seeing the patients interact with each other and show support to one another has shown us the value and strength of the human spirit. We will never forget our time at the Royal Hospital for Neuro-disability.