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ARTHRITIS CARE

INFORMATION ASSESSMENT

An Interactive Qualifying Project Report

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of the

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by

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1. **information**
2. **technology**
3. **communication**

Abstract

The purpose of this project is to develop recommendations for the improvement of the information exchange system currently used by Arthritis Care, a non-profit organisation in the United Kingdom. We used interviews, focus groups, and surveys to obtain the opinions of Arthritis Care's staff on the topics of communication, information needs, and the implementation of a new computer based information system. From the responses of the staff members, we extracted data to determine their information needs and prioritised them. Finally, we made recommendations for an Information Technology system, training requirements, and policies and procedures that best suit the organisation's needs. The improvement of Arthritis Care's information and communication system will help the organisation become more efficient and productive in supporting people with arthritis.

Acknowledgements

There are many individuals that we would like to thank for their contributions to our project. We would like to extend our gratitude to the employees and volunteers in Arthritis Care, for taking their time to answer our numerous questions. We would especially like to thank our liaisons Judith Smart, David Wright, and Cathy Debenham for their continued suggestions and support. In addition, we would like to acknowledge Professor Wes Jamison for giving us direction and the necessary techniques to tackle our project. Finally, we would like to express our deepest gratitude to our advisors, Professors Holly K. Ault and Joel J. Brattin, for their countless hours correcting, rewording, and suggesting in regards to our report.

Executive Summary

Arthritis Care is one of the largest non-profit organisations in the United Kingdom. Their mission statement is ambitious; their goals are to promote health, well-being, and independence through the various services they provide. For our Interactive Qualifying Project (IQP), we assessed the information needs within Arthritis Care, prioritised them, and made recommendations for an Information Technology strategy. The IQP is a project that emphasises technology and its interaction with society. In our project we specifically looked at how the information exchange between employees and volunteers in Arthritis Care can be improved using the current technology that they possess as well as new technology that is more efficient.

We began with an analysis of Arthritis Care's organisational structure. This gave us insight into how the staff functioned and communicated. Arthritis Care is a very large organisation, with four hotels and 622 branches in seven regions located throughout the United Kingdom. In order for regionalisation of the organisation to be successful, communication must be efficient. Currently, many of Arthritis Care's employees work from their homes instead of an office. This poses challenges for communication, such as the lag in time when receiving important documents through the post and lack of face-to-face contact.

We gathered information from selected staff through interviews, focus groups, and surveys about communication, information needs, and the implementation of a new computer based information system. We interviewed many of the upper management level employees in the organisation. We chose these individuals strictly by the positions they held in Arthritis Care. In the central office in London we chose to interview the heads of each division as well as the individuals that were personally involved with our project. The total number of upper management level employees interviewed was twelve. We also interviewed four regional

employees in each of the five regions: Southwest England, Northern England, Central England, Northern Ireland, and Scotland. These participants were chosen at random from a list of regional employees. In addition to regional employees, we interviewed four volunteers from six of the seven regions. Since Arthritis Care owns and operates four hotels, we thought that it was valuable to get the hotel employees' opinions on the current communication system as well. From the four hotels we interviewed three management employees.

We held focus groups in each of the regions that we did not conduct interviews. Focus groups allowed us to gather a large number of opinions in a short amount of time. We held two focus groups in the central office with employees from each division. There are five divisions and each division was represented in our focus groups. We then conducted a focus group with various employees of the Orton Rigg Hotel. In addition, we travelled to Wales and conducted a focus group with regional employees during a meeting. Finally, we conducted two focus groups in the region of Southeast England. One focus group included regional employees while the other was all volunteers. In total thirty-nine individuals attended our focus groups.

In addition to interviews and focus groups, we relied on surveys to obtain data pertaining to the information exchange between individuals within Arthritis Care. In the first week of our project in London we were informed that a conference with the development officers was being held. We sent surveys to be distributed at the conference and received sixteen responses. In addition to the development officer survey, we distributed a survey at the beginning of each of our focus groups.

In total we contacted 114 members of Arthritis Care's staff, 49 through surveys, 59 through interviews, and 39 through focus groups. Note that the individuals that participated in the focus groups also filled out a survey.

From the information in the interviews, focus groups, and surveys we obtained a variety of data. We asked a number of questions focussing on communication, information exchange, and implementation of a new computer based information system. The data was then represented in graphical form. However, the information that we received from the focus groups was not as quantitative, therefore, it is represented in a table as a list of ideas. We used the most commonly mentioned ideas to conduct our analysis.

In our analysis we combined all of the data we received into three categories: communication, information needs, and staff's opinion about the implementing a new computer based information system. We analysed the current methods of communication including ineffective and inefficient ways in which Arthritis Care communicates. Next, we investigated the information needs of Arthritis Care. We analysed the responses in each of our gathering techniques to summarise different types of information that the employees and volunteers need. We were able to categorise these needs into directory information, management information, arthritis information, Arthritis Care publications, manuals, and information providing support services that are available to individuals with arthritis.

Finally, we inquired about employee opinions concerning the implementation of a new computer based information system. It was stressed in our focus groups that a new computer based information system would not be able to take the place of the existing system but it could be used as a supplement to the current information exchange system. In general, the staff members strongly supported the introduction of a new computer based information system. However, it was indicated in the focus groups that in order to support such an implementation, money must be spent on training to use the new system.

From our information gathering techniques, data, and analysis we were able to make recommendations to improve Arthritis Care's current information exchange system with the emphasis on Information Technology, training, and policies and procedures. We made recommendations on how they could improve existing methods with the current technology that they possess, as well as how new technology could be beneficial. The employees felt that it is imperative to make provisions for training which should be coupled with the introduction of new technology. Therefore, we recommended that heavy emphasis be placed on training. In addition, we highlighted areas in which we felt Arthritis Care should develop policies and procedures for the usage of a new computer based information system.

In conclusion, we feel that we have accurately represented the opinions of the employees and volunteers of Arthritis Care in our assessment of the current information exchange system. From the information that we gathered, we made recommendations to improve the current system through better use of current resources as well as suggestions for implementing new technology, training, and policies and procedures.

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1.0 Introduction

Arthritis Care is one of the largest non-profit organisations in the United Kingdom. As of 1998, their membership included 59,000 people across the U.K. Arthritis Care has three goals that are each equally important. Their first goal is to provide support for people with arthritis, particularly through helplines, information services, and the provision of empowerment training. The second goal is to raise public awareness about arthritis to the population of the United Kingdom. In addition, Arthritis Care wants to campaign about the impact of arthritis, such as its prevalence and barriers that people with arthritis face. The final goal in the mission statement is to achieve financial security for the organisation. Arthritis Care has 622 branches and groups and operates four hotels in the United Kingdom (Arthritis Care, 1999).

Arthritis Care provides a wide range of services. For instance, arthritis information is provided by helplines, web sites, and a travelling roadshow scheduled for the year 2000. Arthritis Care has adopted the philosophy of the social model of disability. This philosophy is that it is not someone's impairment that makes him or her disabled, but barriers that society has made, such as stairs and attitudes of people. Arthritis Care is continually lobbying for equal levels of services and access for everyone.

In order to reach as many people as possible, Arthritis Care relies on communication within the organisation as well as with their information seekers. One of Arthritis Care's goals for the millennium is to improve communication within the organisation as deemed necessary by the staff and volunteers.

Arthritis Care has asked us to help them prioritise informational needs for their internal communication system and then identify an IT solution. The focus of this Interactive Qualifying Project (IQP), is to establish the information needs of Arthritis Care's staff and volunteers, prioritise those needs, and establish plans for an Information Technology solution.

The primary goal of the IQP at Worcester Polytechnic Institute is to provide students with the opportunity to understand how technology interacts with society. Our project will involve analysis of the existing communication structure, the information exchange needs of Arthritis Care, ways to improve the information exchange needs, and issues such as training and policies and procedures that are incorporated with the implementation of a new system.

2.0 Review of Literature

Our objective was to help Arthritis Care assess their information exchange system. However, in order to undertake this task we needed to have a variety of background information. In our review of literature we researched relevant topics that we felt would help us to better assess the information exchange needs of Arthritis Care. We realise that it is very important to be aware of the organisation of Arthritis Care and how learning and behaviour affects its structure. We have conducted research in the areas of an organisation's transition to technology and the designing of an appropriate Information Technology (IT) system. Next, we researched how security would have an impact on the introduction of a new IT system, including topics such as the privacy of information and the development of a secure system. To promote security and easy transition to new technology, we realised that it is important to include policies and procedures. We researched other companies and organisations computer policies and procedures. Finally we researched Arthritis Care itself, from its goals to its organisational structure.

2.1 Organisational Theory

It is necessary to understand organisational theory in order to understand fully any type of organisation. There are three divisions of organisational theory: structure, behaviour, and learning. Organisational structure is the study of the divisions of an organisation. Organisational behaviour defines the way in which the divisions of the structure behave. Finally, organisational learning is the way in which the divisions of the organisation and the whole organisation learn. Each of these areas must be interconnected for an organisation to communicate and operate efficiently. Organisational theory is a starting point to understanding the channels in which information flows.

2.1.1 Organisational Structure

The structure of an organisation sets the foundation for interactions within that organisation. There are four main classes of structure. These are traditional or classical structure, the linking-pin model, the matrix model, and strategic business units (Cohen 1995).

Traditional structure arranges positions in a bureaucratic hierarchy, which follows a pyramid-type outline (see Figure 1).

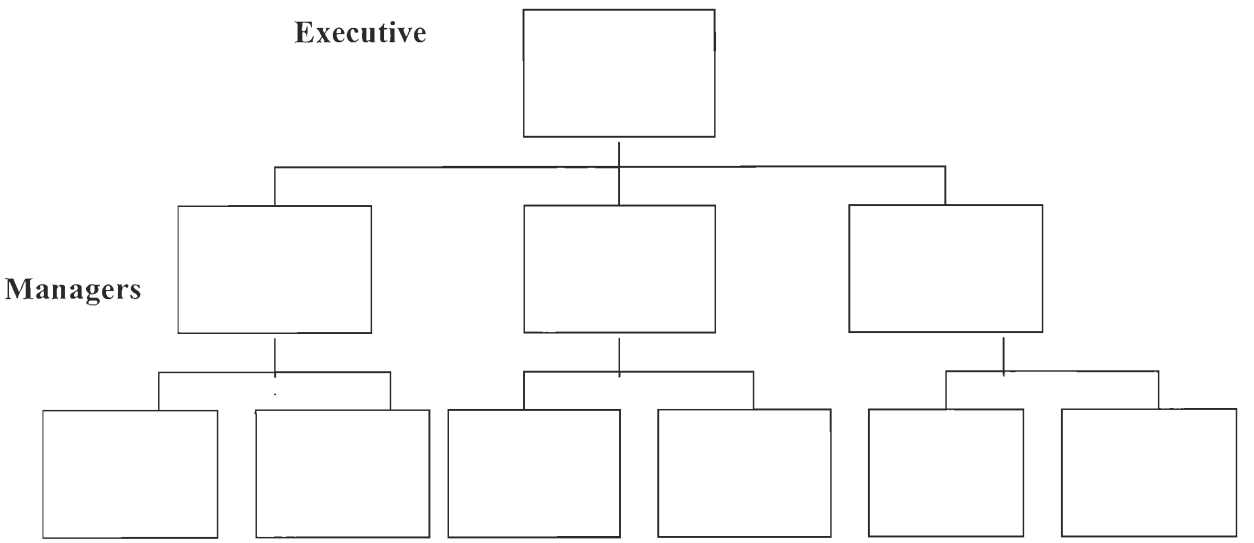

Figure 1 - Pyramidal format of the traditional structure arrangement (Cohen 1995)

In this type of structure there are a few distinct characteristics. As explained by Cohen, they are:

1. Decisions are made by specified people in a hierarchy, which gives increasingly broader powers to those who are higher in the organisation.
2. There is a set of explicit rules governing the rights and duties of employees.
3. Labour is divided into carefully prescribed jobs by speciality.

4. A set of procedures governs how to deal with problems as they arise from the work.
5. Relationships are impersonal, objective, and fair.
6. Selection and promotion are based on technical competence.
7. Co-ordination of the work is done through the chain of command (hierarchy).
8. Disagreements between units at the same level are referred up the chain for resolution.
9. Rewards tend to be formalised and uniform.(1995)

Large companies use this type of organisational structure.

In contrast to the traditional structure of organisation, the linking-pin model is less formal, allowing for more group discussion. The linking-pin model arranges staff into a set of interrelated groups of people. The model is arranged in a hierarchy with managers being used as linking-pins to connect the various groups, such as workers. In the diagram, it is easy to see how the managers are linked to the different groups (see Figure 2). The key to this model is that the managers serve as links to the various subparts of the business organisation to keep important information flowing through the system. This model eliminates some of the problems in a strict bureaucratic hierarchy, such as the limited information pathways (Cohen 1995).

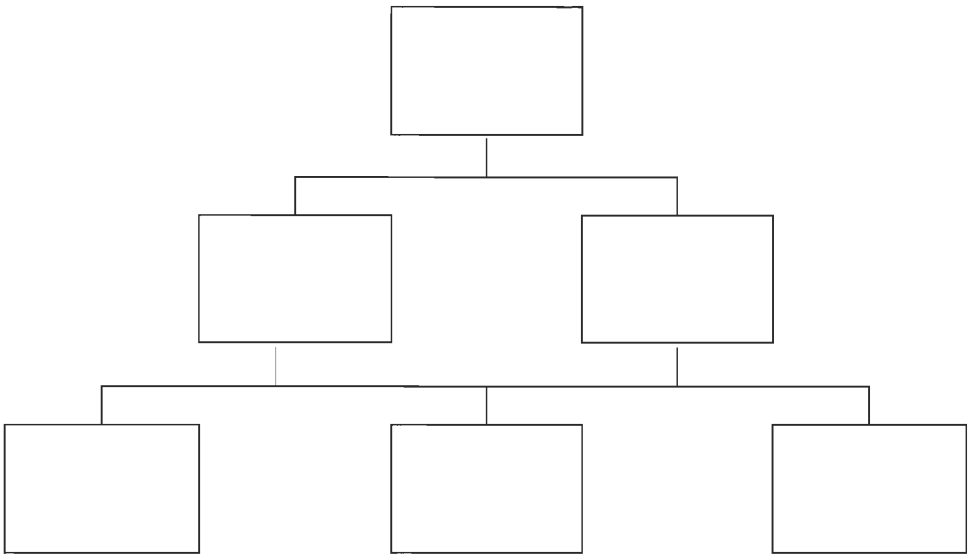

Figure 2 - The linking-pin model (Cohen 1995)

When it is imperative to have a great deal of interaction at the lowest level where expertise resides, the matrix model of organisational structure is used. The matrix model facilitates the most efficient flow of critical information and expertise to places where needed. Organising in this manner reduces the danger of important decisions becoming lost in the hierarchy pyramid. This structure is also conducive to the introduction of temporary task groups. This type of structure operates according to the following diagram:

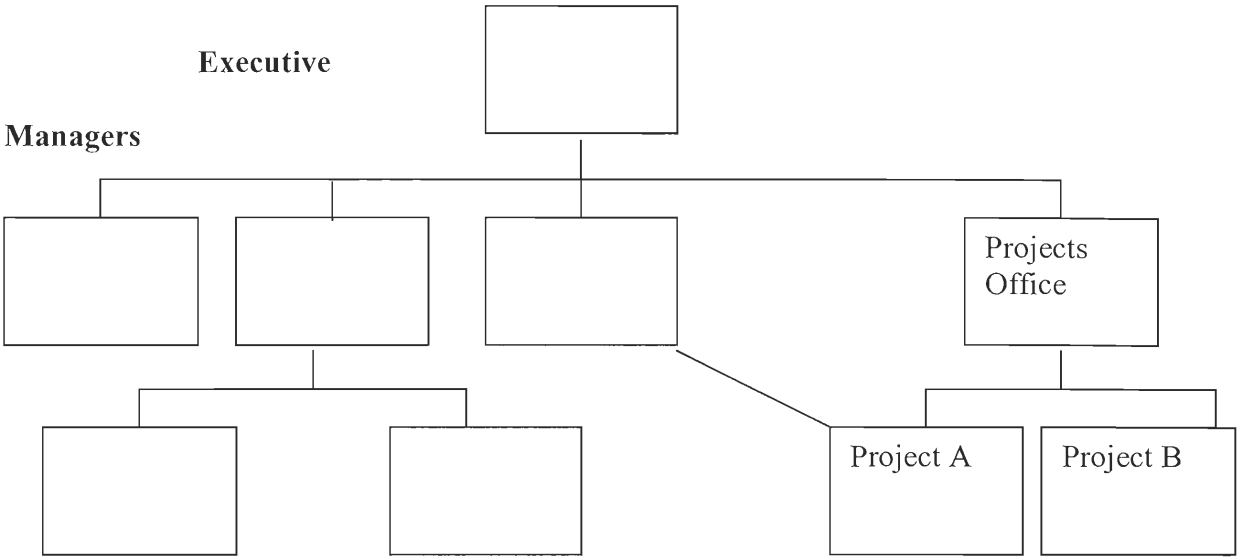

Figure 3 - The Matrix model (Cohen 1995)

Matrix organisation can include functional units and geographical units under the same hierarchical order. However, this model generally creates more problems than it solves by having more managers to report to than in the traditional organisational structure (Cohen, 1995).

Strategic business units (SBU) are a way to divisionalise, or in other words, create autonomous divisions in an organisation that act like separate businesses. The organisation is structured around these SBU's which are coordinated by common policies from a centralised corporate unit. This structure is most effective for corporations that have become globally enterprised. Information is distributed by the corporate unit to the individual SBU's. Once the SBU's have the information, it is distributed within the organisation (Cohen 1995).

2.1.2 Organisational Behaviour and Attitudes

The interactions and activities of members of an organisation are the most directly observable aspect of a social system. Interactions between members of an organisation include the exchange of words or information among two or more members. These

interactions help to determine boundaries and friendships, as well as other types of feelings. Activities are the actions of the members while they are in the group, which defines behaviour (Cohen 1995).

Required behaviours are designated by an organisation. These behaviours are the formal system, distributed in the form of a handbook. The requirements encompass activities and interactions. Understanding emergent and required behaviours can help to facilitate the movement of information and ideas within the organisation. Emergent behaviours are an informal system that gives a group its particular identity. These types of behaviours influence the performance of a group as much as or more than the required system. However, it is possible to predict emergent behaviours by asking questions which refer to the required behaviours. These questions are:

1. What tasks are required? What is it that people have to do when they are working? How are they likely to feel about the tasks?
2. Who is required to interact with whom, and what relationships are likely to result?
3. What attitudes are required, and are these attitudes likely to cause resentment or enthusiasm? (Cohen 1995)

Another source for understanding a social system is the attitudes of the employees. Attitudes are perceptions, feelings, or values. They include the category of "norms," which are developed attitudes of how members ought to behave in a group. Norms are unwritten rules or shared beliefs of a majority of the employees, which are agreed upon without being clearly spoken or written (Cohen 1995).

2.1.3 Organisational Learning

Technology is constantly changing and this means that organisations need to change as well. In order to upgrade information systems and communications systems, one must be aware of the many ways in which organisations learn. Organisational learning is divided into a learning subsystem, which encompasses levels of learning, types of learning, and critical organisational learning skills (Marquardt, 1996).

There are three levels of learning: individual, group or team, and organisational learning. Individual learning is acquired by self-study, instruction, insight, and observation. Through these ways of learning, an individual has a change of skill level and knowledge. In group or team learning, a group increases skills and knowledge interacting in groups. Lastly, organisational learning is the enhanced intellectual and productive capability of an entire organisation through corporate-wide commitment. Organisational learning occurs through shared insights and knowledge of members of the organisation. Additionally, this type of learning builds on past knowledge and experience from policies and strategies skills (Marquardt, 1996).

In addition to different sublevels of learning, there are different types of learning. The four types of learning are characteristic of all levels of learning. Adaptive learning is learning that comes from experience and reflection. Anticipatory learning is the process of acquiring knowledge from expecting the future. Generative learning is the learning that is created from reflection, analysis, or creativity. Action learning or action reflection learning involves reflecting on real problems using the formula of L (learning) = P (existing or programmed knowledge) + Q (questioning insight). These different types of learning are key when implementation of a program starts. Awareness of these different types of learning can help

management to plan accordingly in order to make the change efficient for everyone within the organisation (Marquardt, 1996).

In addition to levels and types of learning, there are different skills associated with learning. System thinking is a skill in which one is able to make a conceptual framework in his or her mind in order to make a plan more clear and judge its outcome. Mental models are assumptions that influence understanding of the world and actions needed to take in accordance with it. Team learning focuses on the process of aligning and developing the capacity of a team to create the type of learning and results that its members strive for. Shared vision is a skill that involves individual and/or team brainstorming about the future. Finally, one of the most important learning skills is dialogue. Dialogue is the highest level of listening and communication between people. This skill is important because it keeps every organisation member aware of what is happening in the organisation (Marquardt, 1996).

Organisational upgrade of operational aspects needs to take into account the levels, types, and skills of learning. If successful harnessing of these aspects occurs, everyone will be able to make a successful and efficient change.

2.1.4 Non-profit Organisations

Non-profit organisations vary widely in both structure and purpose. However, most non-profit organisations seek to provide a service to the community as the primary goal instead of making a profit. One important aspect of most non-profit organisations is voluntary action. Volunteers are people who are neither paid for their work nor forced to work against their will. They are simply people with a common purpose and common goals, which they are not forced to pursue (Connors, 1988).

The management system of a non-profit organisation is similar to that of a for-profit organisation. The term "profit" is realising higher returns from the same or a lesser amount of

assets. In terms of that definition, non-profit organisations still seek profit through increased productivity, improved quality of work, and lower overhead costs (Connors, 1988).

2.1.5 Organisational Analysis

Performing an organisational analysis can help to improve the management of an organisation. An organisational analysis consists of identifying the organisation's strengths and weaknesses, and identifying the areas that require more study. After these aspects are identified, they are prioritised based on the effect they have on the organisation. Some problems may affect just one aspect of operations and others may affect the entire organisation's performance (Connors, 1988).

After the organisational weaknesses are identified and prioritised, goals are established to help solve the problems. The goals should be based on improving the organisation's general purpose. One issue is whether the organisation has the resources to accomplish the goals. These resources include finances, facilities, employees, and volunteers. The goals must be oriented around the available resources (Connors, 1988).

The next step is making recommendations and strategies for improvement. These recommendations and strategies should be based on the organisational analysis (Connors, 1988).

2.2 Organisational Transition to Information Technology

Many businesses and organisations have recently been implementing Information Technology (IT) systems to facilitate communication of information. Information Technology is any type of technology that processes and organises information (Khosrowpour, 1994).

2.2.1 Reasons for Change

Information and knowledge are increasingly important factors in the world's economy. Futurist Alvin Toffler defines this new information age as the Third Wave, with the agricultural age labelled as the First Wave and the industrial age as the Second Wave. Service-oriented businesses dominate the Third Wave economy, as opposed to manufacturing-based businesses, which dominated the Second Wave (Hope 1997, Woodall et al. 1997). The industrial age organisations relied upon the availability of raw materials, such as land and labour. Now, however, a Third Wave company is more concerned with the accessibility and distribution of knowledge and information (Hope 1997). Woodall claims that in this new information age, knowledge will succeed capital and labour as the principal component of production (Woodall et al. 1997).

With the productivity of businesses now rapidly increasing, blue-collar workers are giving way to what are known as knowledge workers. These workers use their intellect rather than physical labour to help their companies. To be effective, these knowledge workers need many different kinds of information before they can make decisions. Organisations who wish to compete effectively in the Third Wave economy will need a systematic way of delivering information to these knowledge workers. Successful companies will implement systems that will deploy information and promote intraorganisational communication in order to increase productivity and efficiency, and ultimately provide a better product or service to their customers (Hope 1997).

2.2.2 The Impact of Change

In order to stay competitive, it is necessary for organisations to make changes to update existing Information Technology systems. However, when making a change in IT

management, an organisation must take into account the effect it has on the employees. It is the nature of most people to become accustomed to their everyday methods and resist change. Woodall et al. (1997) give some suggestions for overcoming resistance to change with the following list:

- Keep everyone informed and communication lines open
- Make certain all staff are involved from start to finish
- Receive, and be receptive to, feedback
- Conduct thorough training sessions before a change is implemented
- Explain the reasons for change
- Refrain from "changing a change"-one thing at a time

All of the above suggestions will help make change easier for the employees (Woodall et al. 1997).

When new Information Technology is implemented, employees will sometimes become fearful that they will no longer be needed and may lose their jobs. The best way to deal with employees' fears is to address the fears openly from the outset. Employees should understand that exceptional technical abilities are not required for them to use the new system. All employees should be able to learn the system at their own pace and should not receive any negative criticism for slow learning (Woodal et al. 1997). In addition, it is a common belief that more technology means fewer staff. In fact, new technology can create jobs by extending the market with the existing staff. Employees should look at new technology as an opportunity to attain new skills and become more valuable to the organisation as a result (Woodall et al. 1997).

2.2.3 Training Employees

Information Technology concepts are constantly changing, which is why employees must be trained to stay up-to-date with the most recent advances. To make the transition to

new technology easier, it is important for employees to understand some basic concepts. If employees have a firm grasp on these basic concepts, they will be able to adapt to new technology more easily. The Committee on Information Technology Literacy lists the following as today's set of ten essential skills:

1. Setting up a personal computer
2. Using basic operating system features
3. Using a word processor to create a text document
4. Using a graphics and/or artwork package to create illustrations, slides, or other image-based expressions of ideas
5. Connecting a computer to a network
6. Using the Internet to find information and resources
7. Using a computer to communicate with others
8. Using a spreadsheet to model simple processes or financial tables
9. Using a database system to set-up and access useful information
10. Using instructional materials to learn how to use new applications or features (Snyder, 1999)

Training can help to teach these ten essential skills.

Training can be divided into two levels: basic computer knowledge and specific program training. Basic computer knowledge entails general techniques, such as turning on a computer and troubleshooting minor hardware and software problems. This is the very lowest level of knowledge; it serves as the base to make sure that employees are able to work the computer programs properly. Basic knowledge can be gained through a variety of resources such as computer manuals and books, classes, video training tapes, and individual training. For books and manuals to be effective, it is imperative that the computer is in front of the

employee while he or she is reading. This way the employee can practice what he or she is reading. Computer classes are usually expensive and the results depend upon the expertise of the teacher. Individual training is the most expensive but the quickest and most comprehensive way to learn computer knowledge because of the one-on-one interaction between the expert and student (Caplan, 1995).

Specific computer training deals with specific programs and manipulations that arise while using a program. Specific program training can be learned the same ways as the basic knowledge can be learned: through books and manuals, videos, classes, and individual training. In addition to these methods, many programs provide other options to learn how to use them. These include help screens, demonstrations, and tutorials. For example, help screens appear when the user presses the help button while using the software. An index to a manual may appear or specific topics may come up in a dialogue box. Tutorials guide employees through the program features, often requiring examples to be completed. Most programs now offer demonstrations that the user can look at, update, print, and alter without interfering with the program operation. This provides the user with examples to see how a program is intended to be used (Caplan, 1995).

However, after the basics are learned the training can not stop there. New people will enter an organisation and upgrades to software and hardware will become available which all require training programs. In order to solve the problem of employee turnover and computer training, policies for continual training should be considered (Caplan, 1995).

2.3 Design of an Appropriate IT System

An organisation that wishes to benefit from an internal information system must first identify and define certain aspects of the organisation. An IT based solution is tailored to the organisation after considering and accounting for these aspects. Most of the available literature on Information Technology agrees that there is a process that is undertaken before

an organisation can successfully implement and utilise an information system. Keyes (1993) summarises this process best by breaking it down into four distinct steps. The first three steps consist of identifying the organisation's goals, determining the stakeholder groups and their information needs, and defining the goals and purpose of implementing an IT system. The last step consists of actually developing and implementing an IT system using the information mentioned above.

2.3.1 The Organisation's Goals and Objectives

Defining the organisation's objectives and business strategy is the first step taken when developing an information system. Identifying the organisation's mission statement starts this task. It is also helpful to list each goal and objective of the organisation. In addition, it is necessary to analyse the organisational strategy and techniques. Poorly or incorrectly defined business objectives and strategies will result in an ineffective IT system. (Khorosrowpour, 1994, Mann-Rubinson, 1999).

2.3.2 Identification of Stakeholders

It is essential to the effectiveness of the IT system to identify exactly who will be using and benefiting from the system. Nasi (1995), author of *Understanding Stakeholder Thinking,* defines stakeholders as people and groups of people who are motivated for their own reasons to participate in an organisation. Also, these people depend on the organisation and vice versa. Examples of stakeholders include owners, management, employees, customers, volunteers, and the government.

Stakeholders can be classified in two categories: internal and external. External stakeholders have no official relationship with the organisation. Internal stakeholders are those individuals or groups of people who have an explicit or formal relationship with the organisation. Internal stakeholders include the management and personnel of an organisation.

These internal stakeholders will use the organisation's IT system. Therefore, they are of utmost importance (Nasi, 1995).

In determining the goals of the internal stakeholders or the potential users of an organisation's IT system, it is useful to classify them into four groups. These groups are top management, user management, IT management, and end users. Top management personnel are those who are responsible for the business operations and major decisions of an organisation. They usually have no formal education in IT and are normally heavily concerned with the cost of IT systems. On the other hand, user management, responsible for separate units within the organisation, are less interested in the cost of IT but, rather, the performance and efficiency of their unit. IT management employees are accountable for the information processing/services department in the organisation. The last group of stakeholders, often the most important, is made up of the people using the IT system. This group is known as end-users and includes many of the members of the first three groups (Nasi, 1995).

It is necessary to take into account the different information needs of all the stakeholders. Specifically, the information needs of the end users should be carefully defined. The productivity and efficiency of the organisation will depend on the end users' ability to use and extract information effectively from the IT system. For this reason, it is imperative to identify and then systematically prioritise the needs of everyone who will be using the system (Khorsrowpour, 1994).

2.3.3 Goals and Purpose of an IT System

After the stakeholders' and organisation's goals and information needs have been defined, it is time to identify the goals and purpose of the IT system. Khosrowpour (1994) provides a set of questions helpful in formulating the objectives of an IT based solution. The questions are as follows:

- Why is the proposed system necessary?
- What will the system be used for?
- What present problems will the system help solve?
- What is the expected capacity/scope of the proposed system?
- How does the purpose of the system enhance goal attainment at organisational and business unit levels?
- What are the expectations from the proposed system? What can and cannot the proposed system do, given the particular business situation? (Khorsrowpour, 1994)

It is important to note that these questions cannot be answered by just an organisation's IT department but must be answered in conjunction with a sampling of knowledge workers from different departments within the organisation. This will keep the objectives and goals of the IT system firmly tied in with the objectives of the organisation (Khorsrowpour, 1994).

2.3.4 The Design of an Organisation's IT System

Once the objectives of the organisation, the stakeholders and their information needs, and the purpose of the IT system is established, a structural skeleton can be developed. The finished design of an IT based system can be made up of many different components. The two most important components are the network and Intranet.

The network is the most important part of an IT system, which is a system of computers that are linked together allowing users to communicate through their computers. There are two common forms of the network: centralised and distributed. A centralised network is made up of computers that communicate with each other through a central computer. The advantage of this type of network is a centralised point of control and oversight of the network at the central computer. On the other hand, there is a single point of failure at the mainframe, which could shut the whole network down (Mann-Rubinson, 1999).

The second type of network distributes the computing and communications tasks throughout the computers on the network. This type of network is referred to as a distributed network. In addition, there are three types of distributed networks: LANs, MANs, and WANs. A LAN, local area network, connects computers between small distances, usually in the same building or city block. A metropolitan area network, MAN, is based on the same high rate of transfer as LANs but is able to connect computers across an entire city. On the other hand, WANS, wide area networks, connect computers at much slower rate of transfer but over very large distances (Mann-Rubinson, 1999).

An Intranet can use the Internet to make corporate information easy to access. Information can be accessed using the same tools and protocols involved with the Internet, only it is accessible to those within the organisation. An Intranet is made up of servers and clients. A server is a computer that operates as a hub of an Intranet by housing web pages. A client uses browsing software to receive web pages from the server (Hills 1997).

The implementation of a network and internal web provides an organisation with a wide array of tools that can be used. Computer scheduling, audio conferencing, computer messaging, electronic mail, and document repositories are all tools that organisations are utilising to promote productivity and efficiency among employees (Hills, 1997, Liebowitz, 1999).

Scheduling tools allow employees to post their schedules on the organisation's network, enabling other people within the organisation to view them. This allows employees to plan and hold meetings at convenient times for everyone involved. In addition, some scheduling programs let employees reserve times on another person's on-line diary (Hills, 1997).

Audio conferencing is a practical tool for meetings that cannot be held in person. It allows a group of people to simultaneously speak to each other over the telephone. Computer

messaging, or chat, allows people to share ideas through their computers. People simply type messages and send them back and forth in real time. Chat can connect any number of people at one time and records the dialogue or path of the conversation (Grenier, 1995).

Electronic mail or email is becoming increasingly popular and even necessary in today's business world. Email provides an organisation with an efficient method of communication that overcomes time and distance barriers. It allows a person to compose and send a written message quickly. This message can be read at the recipient's convenience. In addition to text, it is now possible to send audio, video, and a variety of other files via email. Messages may be sent to any number of recipients. In addition, distribution lists allow people to send predetermined groups of people emails without having to know all of their addresses (Grenier, 1995).

Document repositories or data warehouses can hold and organise many different types of data. This information can include anything from written documents and memos to raw data collected from an investigation. The purpose of these document repositories is to store, organise, catalogue, and allow for easy accessibility of information in order to support an organisation's decision making process. In addition to cataloguing the data, it is possible to search the repository for specific pieces of information. Document repositories are extremely important to an organisation's exchange of ideas and information (Hills, 1997, Liebowitz, 1999).

2.4 Security in Computing

It is important for computing systems to be secure because computers hold and transfer information that is vital to an organisation's well being. A secure computing system should provide three main properties: confidentiality, integrity, and availability. Confidentiality means that information should only be disclosed according to policy. For

example, if a health organisation has a policy that medical records are not to be released without the patient's consent, then the computing system should be able to provide that option. Integrity means that the information contained in the computing system should not be tampered with. The system should protect against unauthorised access. Availability means that the system should be available to anyone who may need access. When designing a network, it is necessary to keep these considerations in mind (Summers, 1997).

2.4.1 Privacy of Information

The introduction of the Internet has made it possible to move information across administrative, legal, and national jurisdictions as easily as moving it to the next desk. There are two main concerns about a person's privacy involving electronic information. The first concern is each individual's right to have control over the distribution of his or her personal information. Not everyone should have access, but, for example, most individuals would agree that health care providers should have access to pertinent medical information that may help make important decisions and give advice in the best interest of the individual's health. Second, is the concern that revealing personal information about an individual to another party may be used to harm the individual's interests. These interests may include economic or social interests. For example, a loan may be rejected or a membership declined because of revealed personal records (Clayton, 1997).

2.4.2 Developing a Secure System

It has become increasingly important to address the issue of the safeguarding of personal information. The Committee on Maintaining Privacy and Security in Health Care Applications of the National Information Infrastructure recommends two solutions. The first approach is to forbid the collection of data that may be misused. The second approach is to allow collection of some personal data, but impose rules and regulations and enforce them

with penalties for violations. This approach proposes conditions for personal information through policy. All handlers of the information must conform to the policy (Clayton, 1997).

Electronic records that are stored by private organisations are susceptible to intrusion by internal and external agents seeking to violate policy in order to acquire information. For a database system it is important to develop a security policy and provide services and mechanisms needed to implement it. The policy must determine who can have access to information. It must also make sure that those without legitimate reason can not gain access to information. A database management system (DBMS) is the software that maintains databases and provides access to them. DBMSs protect against application errors and unauthorised access to the database (Summers, 1997, Clayton, 1997).

There are a variety of other methods that can be used for the protection of electronic information. These methods include technological measures to improve the security of a network and organisational measures to ensure that individuals are aware of their responsibility to protect information and report violations. It is important take into consideration the effectiveness, costs, and trade-offs that will need to be made in order to implement a secure system (Clayton 1997).

2.5 Policies and Procedures

Policies and procedures are ways in which organisations can ensure that everyone works efficiently. These policies and procedures are extremely helpful when new technology is implemented. They provide for training, maintaining new equipment, and procedures for effective usage. Studying policies and procedures that are provided by other companies could provide a guideline for the development of new organisational policies and procedures for Arthritis Care.

2.5.1 Information Network

Organisational information may be sensitive in nature, and thus should not be accessible to everyone. This can be outlined in a policy, which clearly states that information exchanged within the organisation is confidential and sharing this information is in violation of company policy, punishable by law.

Arthritis Foundation has many branches throughout the United States much like Arthritis Care's many branches across the United Kingdom. Since the same network connects each branch, it is possible to see information pertaining to another branch at any computer across the U.S. Branch information is confidential; thus, it is imperative to develop a procedure stating that this information is proprietary and should not be shared with anyone outside the organisation without permission. In organisations like Arthritis Care and Arthritis Foundation, there are databases of members, financial supporters, volunteers, and employees. All of this information is sensitive and should be handled as such. The Arthritis Foundation Business Information Network (AFBIN) Users Procedures policy (1999), states that confidentiality of individuals within the database and other proprietary information is owned, managed, and stewarded by the Arthritis Foundation.

The AFBIN Users Procedures policy (1999) also states exactly how information should be handled within Arthritis Foundation. This procedure can be seen in Appendix B. The AFBIN provides Arthritis Foundation users access to applications, tools, and information on the network. However, the right to modify the information is more restrictive than the right to view it. The AFBIN policy (1999) notes that all information is accessible to view except for financial worth, payroll data, and other specific information as decided by the organisation.

A procedure stating that all information contained in an organisation's network is proprietary is handed to every new employee before he or she start working. Most

organisations will not allow an employee to start to work until the policy is read, signed, and initialled. This is a binding contract, and it is therein stated that the employee is aware of the policy and promises to comply with its procedures.

2.5.2 Email

Email (electronic mail), is a method of sending and receiving messages electronically via telecommunication links between computers. Email allows a user to create, send, reply, download, display, and read files and graphics across computer networks. Email can be transmitted to one person or many people. It gives people the ability to connect with other individuals wherever they may be in the world at any given time. More and more organisations are using email as a business tool.

Many organisations have implemented email in conjunction with policies that clearly define how email should and should not be used. These policies outline the use for email, such as stating that email within an organisation is meant to perform a job to advance the business of the organisation. It should be evident, as a procedure, that email is the property of the organisation, not the individual, and therefore is subject to interception and inspection without notification by upper management. Since email is the property of the organisation there are some limitations in the way email can be used. For instance, Arthritis Foundation's email policy (1999) states that "sending, receiving, downloading, displaying, printing, or otherwise disseminating material that is sexually explicit, profane, obscene, harassing, fraudulent, racially offensive, defamatory, or otherwise unlawful...[is in] violation of this policy and will be taken seriously resulting in disciplinary action, including possible termination, and civil and criminal liability" (Appendix B).

In addition, email may have sensitive organisational material that is considered proprietary. It is for this reason that email transmittal from within the organisation to people outside of the organisation is strictly prohibited if it contains any information dealing with

organisational business. It is for this reason that Eikos, Inc. (2000) has included a procedure in its email policy that states, "Appropriate encryption technologies must be used when transmitting any email messages containing trade secret materials to any other party...appropriate clearance must be obtained" (Appendix B). Trade secret materials could include, but are not limited to, such items as personal information and financial information.

Finally, email has the ability to become destructive to an organisational infrastructure. For this reason many organisations include procedures that dictate the use of virus protecting software and make it unlawful to use or disseminate destructive programs. Eikos, Inc. (2000) has a procedure in its email policy in regards to the downloading of attachments that are sent through email. It states that a user should only download attachments from sources that he or she trusts, and even then it should be scanned using a virus protection program. Arthritis Foundation makes it unlawful to disseminate destructive programs in their email policy. These programs can be very devastating by infiltrating an organisation's infrastructure resulting in a 'crash' of the entire system. Consequently, important data can be lost if files are not backed up.

2.5.3 Software

Software includes operating systems and programs that are used in an organisation to perform specific jobs. Computer software is usually purchased by an organisation from a software company. When this software is acquired there are certain copyrights that limit the usage of the software. For this reason, many organisations have developed certain procedures that must be followed in regards to software. For instance, Eikos Inc. (2000) designates in their policy that only one person is allowed to approve, acquire, register, and install company software (Appendix B). Since one person is in charge of the software, this ensures that each copyright is obeyed.

As with email, viruses are a great threat to the integrity of an organisation's infrastructure. For this reason, many organisation's software policies include maintenance and software control for employee's home computers. Eikos, Inc. software policy (2000) sets forth procedures such as virus scanning scheduled for the first working day of every month. They also make provisions for software that is exchanged from home computers to computers in the workplace. It is imperative to prevent the dissemination of viruses to protect the integrity of the network system. Eikos, Inc. policy (2000) states that "employees are not permitted to bring software from home and load it on company machines." This protects the computers from viruses and ensures that the copyrights are obeyed.

2.6 Disability in Great Britain

2.6.1 Definition and Terminology

The Disabled People's International (DPI), the first international organisation controlled and run by disabled people, introduced the first definition of disabled that included a look at social aspects. They proposed a two-fold definition to explain the meaning of being *disabled*. The definition is broken down into two parts, impairment and disability. Impairment is the functional limitation within the individual caused by physical, mental, or sensory impairment. Disability is the loss or limitation of opportunities to take part in the normal life of the community on an equal level with others due to physical and social barriers (Barnes, 1991). Even though this was a revolutionary way to look at being disabled, the old stigma prevailed. Society still viewed disabled people as unable to take care of themselves or societal dependants.

In recent years, however, there has been a shift towards a social model of disability. The DPI and the British Council of Disabled People have adopted this new social model. Again, this definition has two parts that are used to define *disabled*. In following with the old

definition, the social model is divided into impairment and disability. Impairment is defined as lacking part of or all of a limb, or having a defective limb, organ, or mechanism of the body. Disability is the disadvantage or restriction of activity caused by a contemporary social organisation which takes little or no account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities. Physical disability is, therefore, a particular form of social oppression (Corker, 1999). It is believed that this new way of at looking at disabled people will provide a basis for understanding and possible liberation from the current social oppression.

2.6.2 Disability Legislation

Only recently has disability discrimination become a punishable crime in Great Britain. The Disabled Person's (Employment) Acts of 1944 and 1958 state that an employer must employ at least 3% disabled people if the organisation has more than 20 staff, unless a special permit has been obtained. However, these Acts were rarely followed or pursued by legal action. It was not until 1995, when the Disability Discrimination Act was passed, that help was given to the disabled sector of Great Britain. This Act deals with two main topics: recruitment and racial discrimination. According to the voice of the voluntary sector (NCVO), the purpose of recruitment and selection is to obtain the number and quality of staff to meet the needs of the organisation at minimum expense. There are three main activities involved in this process: defining staff requirements, finding suitable candidates, and selecting the best person for the job. The Act of 1995 states that it is unlawful for an employer to discriminate against job candidates with disabilities when recruiting. In the area of discrimination, all organisations are obliged by law not to discriminate against employees by reason of their gender, marital status, sexual orientation, disability, colour, race, nationality, or ethnic or national origins. In order to comply with the legislation, companies must have a written equal opportunity policy and written procedures covering equal opportunities in

recruitment, promotion, transfers, training, dismissal, and redundancy. It is also strongly suggested, but beyond legal consideration, that, as a matter of good practice, organisations should also include the prevention of discrimination on grounds of age, religion, and HIV/AIDS status (NCVO, 1998).

The Disability Discrimination Act is only a beginning towards liberation for disabled people. The new social model of disability is fuelling a change throughout all of Great Britain in how the disabled are viewed and treated. As with everything, change does not come about quickly or easily. Disability continues to be an important topic in Parliament as well as in the business and private sectors, and it looks as though it will continue to be discussed in the future.

2.7 Arthritis Care as an Organisation

2.7.1 Arthritis Care Division

Arthritis Care is one of the largest non-profit organisations in the United Kingdom. Arthritis Care was divided into two main divisions about ten years ago; these divisions were Arthritis Care and Young Arthritis Care. These two divisions were divided by their philosophy of how the main organisation should be run and what its mission statement and aims should be. Arthritis Care's focus was to teach the arthritic population how to cope with arthritis while Young Arthritis Care wanted the focus to be aimed at integration into society. Eventually, Arthritis Care's philosophy adopted Young Arthritis Care's new philosophy. Thus, the two divisions within Arthritis Care became integrated by incorporating each individual philosophy to make a new philosophy for the overall mission of Arthritis Care as a charity.

2.7.2 Arthritis Care's Mission Statement and Aims

Arthritis Care has made its mission and aims evident by documenting them in various freely distributed manuals and booklets. Arthritis Care's mission is:

"To work with and for all people with arthritis to promote their health, well-being and independence through services, support, self-help, information and influence" (Arthritis Care, 1997).

In the Arthritis Care Regional Manual the underlined words are important to clarify further the mission statement of Arthritis Care. Working *with* as well as for *all* people with arthritis implies that people with arthritis must be part of everything that Arthritis Care does – at the trustee, volunteer, and staff level. Since the publications and policy campaigns are for people with arthritis, it is better if the people that do the work have first hand knowledge of the subject. This insures for more accurate representation of the arthritic population (Arthritis Care, 1997).

Working "*with* and for *all* people with arthritis" is an ambitious aim given the number of people with arthritis in the UK. It implies that Arthritis Care should reach out to all sections of the community regardless of age, gender, sexual orientation, religion, or race, and develop ways of ensuring that their needs are met. This means offering a variety of different options and possible future expansion of services. Arthritis Care and Young Arthritis Care currently have little to offer for children, teenagers, people in their early 20s, or people in their late 40s and 50s. Arthritis Care's membership is predominantly female and overwhelmingly white (Arthritis Care, 1997).

Working "*with* and for *all* people with arthritis" also means Arthritis Care's concerns are wider than just its 59,000 members. Under the Charity Law, charities like Arthritis Care must aim to serve their entire constituency and not function like a private club. In order to

comply with the Charity Law, Arthritis Care needs to address a wider agenda for campaigning and awareness raising about the needs of people with arthritis, in addition to developing services (Arthritis Care, 1997).

Promoting "health, well being, and *independence*" means Arthritis Care should try to provide people with information, personal support, and encouragement rather than developing dependency. Personal development training and self-management are important elements in this approach. These enable people to develop the capacity for self-fulfilment and independence (Arthritis Care, 1997).

Involvement in "services, support, and *self-help*" is closely related to the concept of independence. Through self-help, people with arthritis share common concerns, learn from each other, and develop confidence in their own abilities. Initiatives to promote self-help are therefore an important part of Arthritis Care's work (Arthritis Care, 1997).

Involvement in "services, support, *self-help*, information, and *influence*" is another important part of the mission. With a constituency of eight million, a membership of over 59,000, and a network of 622 branches, Arthritis Care can exert influence and ensure the voices of people with arthritis are heard in Parliament (Arthritis Care, 1997).

The Regional Manual also identifies ten strategic aims Arthritis Care must strive for in order to pursue its mission. These are:

1. Services: To improve the quality of life for people with arthritis through the provision of a range of services.
2. Information and support: To increase the knowledge and independence of people with arthritis through the provision of information and support.
3. Self-help: To encourage the independence of people with arthritis through the promotion of self-help and personal development and the provision of training.

4. Public awareness: To increase public awareness of the impact of arthritis and the work of Arthritis Care.
5. Professional awareness: To raise awareness of the needs of people with arthritis and the work of Arthritis Care among health and other professionals and statutory, private and voluntary agencies.
6. Policy influence: To influence those formulating public policies so that policymakers understand, and take full account of, the implications for people with arthritis.
7. User involvement: To increase the involvement of people with arthritis in Arthritis Care itself and to strengthen their public voice in influencing the plans and policies of other agencies.
8. Equal opportunities: To increase the range and diversity of people with arthritis involved in Arthritis Care both as service users and service providers.
9. Income generation: To generate the income needed to meet the objectives of Arthritis Care and to avoid dependency on any single source of income.
10. Effective management: To ensure Arthritis Care is well managed both centrally and locally with particular regards to the involvement of volunteers and paid staff. (Arthritis Care, 1997)

2.7.3 Young Arthritis Care's Mission Statement and Aims

Young Arthritis Care shares the same mission statement and objectives as Arthritis Care. However, it is targeted towards people under the age of 46. Although Young Arthritis Care is part of Arthritis Care, branches are asked to make the public aware of the specific services and activities available to this target age group. Young Arthritis Care's aims are to:

1. Meet the need for information, advice, practical help, friendship, and understanding for younger people who have arthritis and their families, carers, and friends.
2. Provide a means of communication between its members, health professionals, and members of other relevant professional disciplines. (Arthritis Care, 1997)

Young Arthritis Care specifically seeks improvement in services and opportunities for younger people with arthritis whether it be for social, welfare, education, employment, or medical aspects. They avidly seek publicity to raise awareness for the needs of young people with arthritis. Young Arthritis Care encourages involvement in its activities of all young people with arthritis, regardless of their disability, gender, colour, ethnic origin, religion, or sexual orientation. Young Arthritis Care uses contacts, a National Committee, and groups nation-wide to meet its goals (Arthritis Care, 1997).

2.7.4 Arthritis Care's Organisational Structure

Arthritis Care is a non-profit organisation whose focus is to "empower people to take control of their arthritis, their lives, and their organisation" (Arthritis Care, 1999). The organisation's priority is to provide support for people with arthritis, particularly through its helplines and information service and the provision of empowerment training. They also campaign to raise public awareness and to achieve financial security for the organisation. In order to provide this support the organisation has 622 branches and four hotels with approximately 260 staff members and more than 7,000 volunteers (Arthritis Care, 1999).

The charity prides itself for being democratic and user-led, with more than half of the trustees having arthritis. The staff members are divided between the central office in London, branches, and hotels. The volunteers work at every level with many providing the delivery of

services. Their roles include trustees, branch officials, Challenging Arthritis course leaders, contacts, information workers, and home visitors.

Recently, Arthritis Care has undergone a vast restructuring. As part of the 2000 budget and the board of trustees decisions, an analysis was done on the current management structure. The structure was assessed by criteria that are accepted to produce a successful operation and meet the aims of the charity. According to a report given to the Board of Trustees, the criteria for the structure of Arthritis Care's management and staff are:

1. It should provide a coherent structure for the management of Arthritis Care's direct services to people with arthritis; for its public policy and campaigning work; and for the management of other support services, such as fundraising, communications, accounting, human resources and campaigning for people with arthritis. It should thus provide a clear structure for pursuing Arthritis Care's mission and priorities.
2. It should set out clear responsibilities and accountabilities for each of the second and third tier managers in the structure so that each manager feels empowered to exercise their responsibilities and can be held to account for their particular areas of responsibility and decision making authority.
3. It should enable the Chief Executive to be well supported and to have the confidence to delegate effectively and appropriately, thus avoiding overloading of, or overdependence on, the Chief Executive.
4. It should be consistent with Arthritis Care's approach to regionalisation and decentralisation. It should therefore achieve the right 'fit' in terms of central and national/regional responsibilities and should include the right communication mechanisms between the centre and the nations/regions. It should also be capable of developing as the approach to regionalisation and decentralisation develops.

5. It should include remuneration policies, which will attract and retain the right calibre of staff.
6. It should, at the same time, be cost effective. (Arthritis Care, 2000)

When these criteria were assessed against the management system, there were evident downfalls in the areas of coherent structure, clear responsibilities, support for the Chief Executive, regionalisation and decentralisation, remunerated polices, and cost effectiveness. From this information, the organisation developed a new management structure effective January 2000. The new management and staff structure is seen in Appendices C and G. This new structure identifies the reporting hierarchy, giving an insight into the flow of information within the organisation. To further break down the structure of Arthritis Care, Appendix C shows the reporting links, as well as how a majority of the information flows, between and within the services division. From the diagrams in the appendices it is easy to see the chain of command (Arthritis Care, 2000).

This information about the charity's management structure is very useful in determining the information exchange between employees. Knowing who reports to whom explains where information is sent and possibly gives insight into what types of information are being exchanged. We are able to better determine who needs access to specific information and from whom the information should be restricted to, through the management structure of the organisation.

2.7.5 Existing Communication

Arthritis Care is a large organisation that uses several types of communication to support regionalisation. Currently, there are three main methods of communication used by Arthritis Care: telephone, paper, and networked communications.

Telephone communication is one of the main forms of communication within the organisation. The information department has a large library of resources about arthritis. Currently, this information is distributed by telephone from the information department employees. Once the information is found, it is copied and posted to the individual seeking information on the topic (Smart, 1999).

Arthritis Care is in the process of upgrading their telephone system. The present system is unable to handle the large volume of calls received and made by the staff at the central office. This new phone system will make use of a virtual switchboard. Instead of having a person direct the calls, a computer will do the work. It is the hope that this virtual system will manage the telephone traffic more efficiently than the old system.

Paper communication is another one of the main types of communication used by the staff and volunteers at Arthritis Care. Currently, the staff uses memos, letters, and order forms. The letters, memos, and order forms are usually requests for copies of Arthritis Care publications that staff members use in their daily work. All publications have to be requested from the central office through the distribution department. Currently, all requests are made through paper communication (Smart, 1999).

Finally, Arthritis Care is in the early stages of implementing a system for networked communication. Central office has network wiring in place and is implementing Intranet software called GroupWise. GroupWise will enable the central office and regional staff to communicate and share information using the same network. Arthritis Care has purchased 100 GroupWise licences. Currently, fifteen central office employees have access to GroupWise. The goal is to network 60 employees in central office and 40 employees in the regions. Staff members working regionally and from home use personal email and Internet access to communicate with other staff members. However, there are very few Internet

connections among regional staff members and no regional employees have access to GroupWise. In addition, the exact extent of staff Internet access is unknown (Wright, 2000).

3.0 Methodology

Our goals are to identify the information needs of Arthritis Care, prioritise those needs, and develop recommendations for the organisation. We first identified the needs of the organisation through the use of interviews, focus groups, and surveys. We then analysed and prioritised the needs using content analysis. Finally, we developed recommendations based upon our results.

3.1 Preliminary Analysis of Arthritis Care as an Organisation

In order to design an appropriate IT system for Arthritis Care, we studied the organisation in detail, to identify the organisations goals and objectives. We obtained this information by examining Arthritis Care's mission statement, strategic plan, and regional manual. We completed most of our analysis before we left for London; however it was necessary to check the accuracy and validity of our findings upon arrival in London. We also obtained additional insight into the organisation's objectives after attending a staff meeting. Through interaction and observation of staff members at Arthritis Care's central office in London, we identified the different divisions. Then we determined which groups of people would use and benefit from an IT system. These groups included management, employees and volunteers.

3.2 Data Collection

We conducted individual interviews and focus groups with a variety of Arthritis Care's staff, and distributed surveys to regional staff members and focus group participants. Interviews and focus groups gave us a wide range of opinions. Although these methods were qualitative in nature, we quantified the results using the technique of content analysis. Within the central office we conducted interviews with twelve management level employees

and held focus groups with eleven of the remaining employees. We visited two of the seven regions and conducted focus groups. We interviewed a variety of staff members in the other five regions via telephone. Also, we distributed a survey to participants of a regional conference as an additional method of collecting data.

3.2.1 Interviews

We began gathering data through the use of interviews. According to Shipley (1995), an interview is a serious conversation conducted with a specific purpose. We used semistandardised informational interviews, asking a number of predetermined open-ended questions and probing questions (Appendix D). This interview structure allowed us to ask our subjects to respond to the same set of questions, while also giving us the opportunity to explore new and different topics relevant to our purpose. During the course of the interview, a research assistant took notes and recorded the interview on an audiocassette with the permission of the participant. Immediately following the interview, the assistant transcribed the conversation into written data.

We began by interviewing twelve management level employees located within the central office. We interviewed the Chief Executive, four of the divisional directors, and various other management figures that were personally involved in our project. We excluded those individuals from our focus groups because we sought to avoid the suppression of participation due to their positions in the organisation.

Since improving the information exchange between the branches is one of the issues we wanted to address, it was necessary to interview people from a variety of locations. We conducted phone interviews with staff members at each of the regional offices that we did not visit. We interviewed four employees and four volunteers in each of these regions. We used random sampling to select our interviewees from employee and volunteer lists of these regions.

3.2.2 Focus Groups

In addition to interviews, we held focus groups. A focus group is simply an informal conversation with a purpose that involves more than one person (Krueger, 1994). One member of our team served as the facilitator for our focus groups, which consisted of five to ten participants. Due to our time constraints in London, we believed the use of focus groups was a good option because it allowed us to gain the necessary information in our time allotment.

There are several advantages to focus groups. One advantage is that we were able to incorporate a number of individuals' feelings and opinions at one time. Also, focus groups generate a much larger number of ideas, opinions, and topics, as well as solutions to problems that may be identified during the discussion (Berg, 1998).

There are also some negative aspects of focus groups. The facilitator can guarantee his or her own confidentiality, but not the confidentiality of the other participants. Some members of the group might not speak out because other staff members are in the room. It is for this reason that we asked the members of the focus group to sign a form to ensure confidentiality. It is important to understand when conducting focus groups that the information acquired is not an individual's opinions, as in an interview, but rather group opinions.

When selecting participants for the focus groups, we incorporated as many different views as possible. In order to select our subjects we used a strategy called purposive sampling. Purposive sampling involves using prior knowledge of a frame to select subjects that represent the whole frame. We researched the organisational structure of Arthritis Care's central office as well their relationship with the seven regional offices. The central office is divided into five divisions that report to a Chief Executive. The five divisions are Support Services, Public Policy & Information, Finance & Computer Services, Communications, and

Training & Development. We randomly selected one person from each division to participate in each of the two focus groups held in central office.

Arthritis Care consists of seven regional offices: Northern England, Central England, Southeast England, Southwest England, Wales, Scotland, and Northern Ireland. We scheduled focus groups in Southeast England as well as Wales. Since the geographical distribution of population heavily favours England, we included an English region. We chose Wales because communication within the organisation needs to be improved with other nation's regional offices. We held one focus group with employees and one with volunteers in Southeast England as well as one focus group with employees in Wales. We also held a focus group with staff members at the Orton Rigg Hotel in Poole, England, upon recommendation from Arthritis Care's hotel manager.

Since we were the facilitators for the focus groups, it was important that we entered with clearly defined goals and objectives. For a complete list of our focus group questions see Appendix E. Our agenda for the focus groups was to determine what types of information Arthritis Care's staff would like to have available in order to be more effective and efficient at their jobs. We used a technique called extended focus groups, which utilises a survey questionnaire that includes information discussed in the meeting (Berg, 1998). We distributed the survey at the beginning of our focus group meeting (Appendix F). This survey was short and consisted of questions pertaining to information needs, computer accessibility, and communication between staff members.

In addition to having a concise plan for the conversation of the focus group, the facilitator kept the group from becoming side-tracked by providing direction. However, the facilitator did not get involved in the conversation. Ninety percent of the communication came from the participants while the facilitator provided only ten percent. The remaining two members of our team served as research assistants, taking notes and recording the

conversation on an audiocassette with the permission of the participants. At the conclusion of the focus groups, the research assistants transcribed the conversation before any discussion amongst team members took place to avoid any bias.

One aspect of a focus group that was not overlooked was getting people to participate willingly in the meeting. When asking people to give up their time to participate in a focus group, they needed to see benefits. We made it clear to them that the information obtained from the meeting was going to be used to help make improvements to their current IT system. We also chose to offer refreshments at the end of the meeting as opposed to the beginning, so that they were not distracted during the questioning period.

3.2.3 Surveys

We distributed a survey as an additional method of collecting data (Appendix G). Surveys are quantitative research methods and do not require content analysis to obtain numerical data. During week two, we were informed of a development officer conference being held at the New Mayfair hotel in Blackpool. Development officers from each region attended this meeting. We decided this conference was a unique opportunity to collect a large amount of data quickly. The survey that was passed out at the DO conference was similar to the questionnaire distributed before our focus groups (Appendix G).

3.3 Social Science Theories

As described by Berg (1998), triangulation is a type of analysis that uses multiple methods to investigate the same phenomenon. We used triangulation by combining focus groups with individual interviews and surveys. This allowed us to accommodate for the weaknesses that exist with the use of just one method.

The social exchange theory illustrates the concept of costs versus benefits. A person computes a cost versus benefits equation in his or her mind when deciding to participate in a

study. If the individual determines that the costs outweigh the benefits of discussing a certain topic, then he or she may lie or not respond (Dillman, 1978). With this idea in mind, the benefits of a situation must be great enough to compensate for the costs that may be associated with discussing a particular topic. To make the benefits greater than the costs we stressed that this information was going to directly influence the construction of a plan for an IT based solution.

Complimentary to the social exchange theory is the total design method. The total design method is a way of improving a research technique by identifying and correcting weaknesses through the use of pre-testing. Pre-testing our interview techniques with our liaisons revealed several problems. We found that our interview was too lengthy and corrected it by eliminating some questions and refining others to make the interview more focused. Also, we changed several questions to make the wording more understandable. We continued to revise our methods when any new problems arose as we proceeded with our interviews and focus groups.

3.4 Data Analysis

Since we used three different methods for obtaining data, we used different techniques for analysing the data. We divided the data into categories based on research techniques and employment levels. There are separate results for interview, focus group, and survey data. Within each of those categories, we also divided the data into categories based on regions and levels of employment: central office employees, regional employees, hotel employees, and volunteers. By separating the results into categories we got a better picture of how the organisation functions. Once we reached our conclusions for each category based on the data, we determined specific needs agreed upon by the staff as a whole, to make recommendations for the entire organisation.

We devised a method using content analysis to analyse and extract data from our interviews. Content analysis is a systematic analysis of written documents and/or transcriptions of recorded verbal conversations. Our analysis included looking at three elements: themes, concepts, and semantics (Berg, 1998). Isolating information from these elements results in quantified results. These results are displayed in charts by using Excel to plot the frequency of responses. We used the data from the charts in order to represent the opinions of the entire organisation.

Our questions fall into two categories: scale or list. A scale question measured responses on four levels. For example, we categorised responses to a particular question into constantly, somewhat, not much, or never. Each question has levels, uniquely tailored to its most common responses. We designed our list questions to measure both the diversity and frequency of responses. Both of these types of questions allowed us to analyse the information needs of Arthritis Care's employees.

3.5 Recommendations

We identified and prioritised the information needs of Arthritis Care from the results we obtained from the interviews, focus groups, and surveys. We indicated possible changes, as well as ways to make more effective use of the existing information exchange system. Financial limitations were taken into account when we made our recommendations. We also suggested areas to educate Arthritis Care's staff in order to achieve effective use of the new IT system. We derived training recommendations from interview questions and focus group discussions pertaining to computer knowledge. We then made recommendations taking into account training programs previously implemented at Arthritis Care.

4.0 Data

We used three different methods to gather data: interviews, focus groups, and surveys. The questions used in each method were different and the data could not be combined. Therefore, we analysed the data separately for each method. We also separated the data into categories based on the positions held by the participants: central office employees, regional employees, hotel employees, and volunteers. We divided the data to allow us to compare the different needs of each type of staff member. We also conducted an aggregate analysis for the organisation as a whole for each research method.

4.1 Interview Data

We interviewed central office management, regional employees, volunteers, and hotel staff. The interview questions were similar, but slightly altered based on the positions held by the respondents (see Appendix D). The interview questions consisted of two different types of questions: scale and list questions. We grouped the data in the scale questions into four levels based on the most common responses of the participants. The list questions were also grouped into categories based on similar responses, then tallied and ordered from most to least common. We illustrated the results of both the scale questions and the list questions using bar charts (see Appendix H).

We conducted interviews with a total of 59 staff members: 24 volunteers, 20 regional employees, 12 central office management, and 3 hotel employees. The interviews lasted approximately fifteen to twenty minutes, focusing on communication, information needs, and implementation of a computer based information system.

We interviewed one employee at each of the three hotels at which we did not conduct a focus group. From our focus group with hotel employees as well as the three interviews, we found that the hotels act almost as separate entities and the information we were seeking did

not apply to most of the hotel staff. Therefore, we only conducted one interview with management at each of the hotels that we did not visit. Due to the small sample size, we did not graph the hotel interview data, but it is included in the aggregate interview charts (see Appendix J).

We selected a sample of the interview charts that were most relevant to our analysis. They are displayed below with explanations of the response categories. The complete set of interview charts is located in Appendix H.

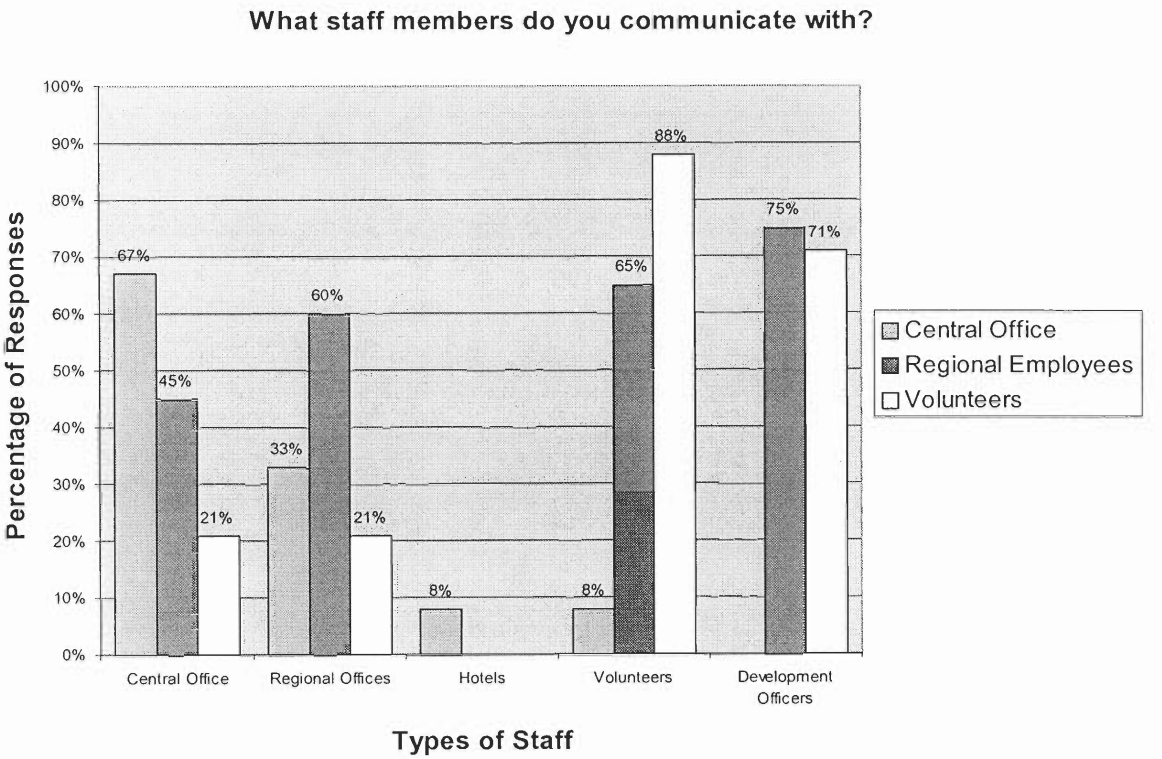

Figure 4 – Types of staff members that are contacted by employees and volunteers

For this question we received numerous responses that named a specific staff member. We then placed these responses into categories based on the type of position.

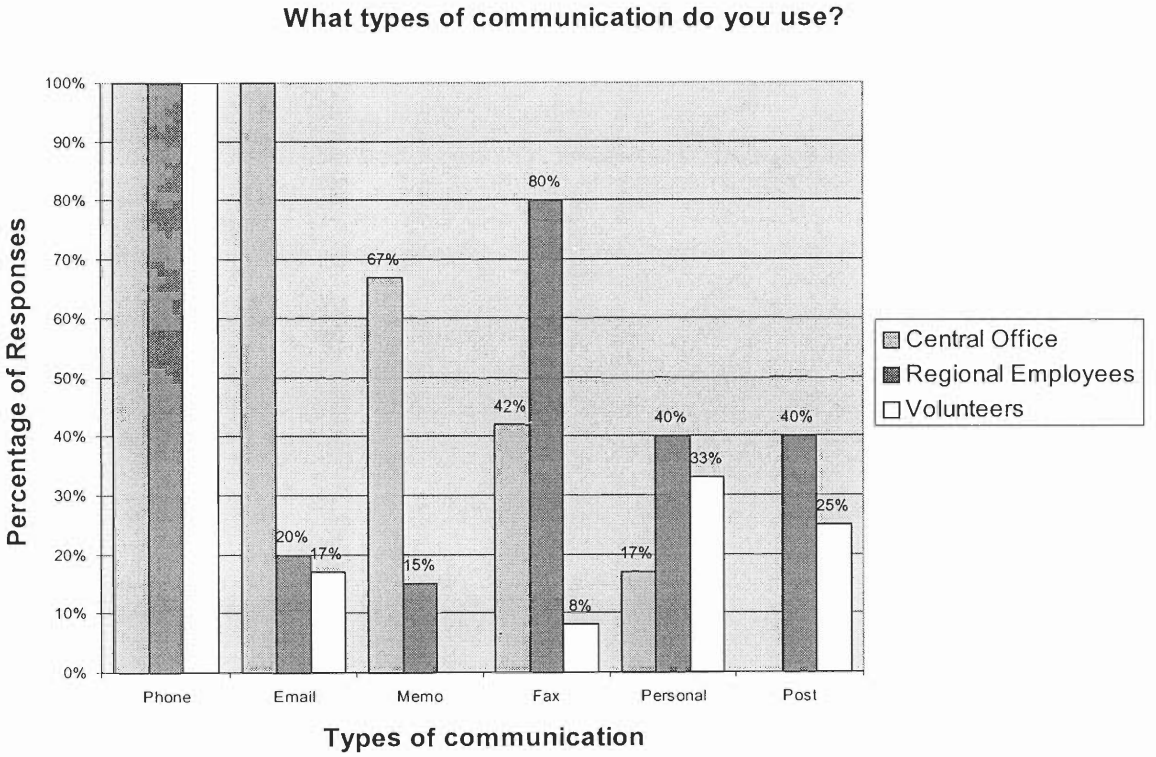

Figure 5 – Types of communication used by Arthritis Care staff

The responses for this question were the same, therefore, we did not have to categorise them. The one exception was the 'personal' category, which includes meetings as well as face to face contact.

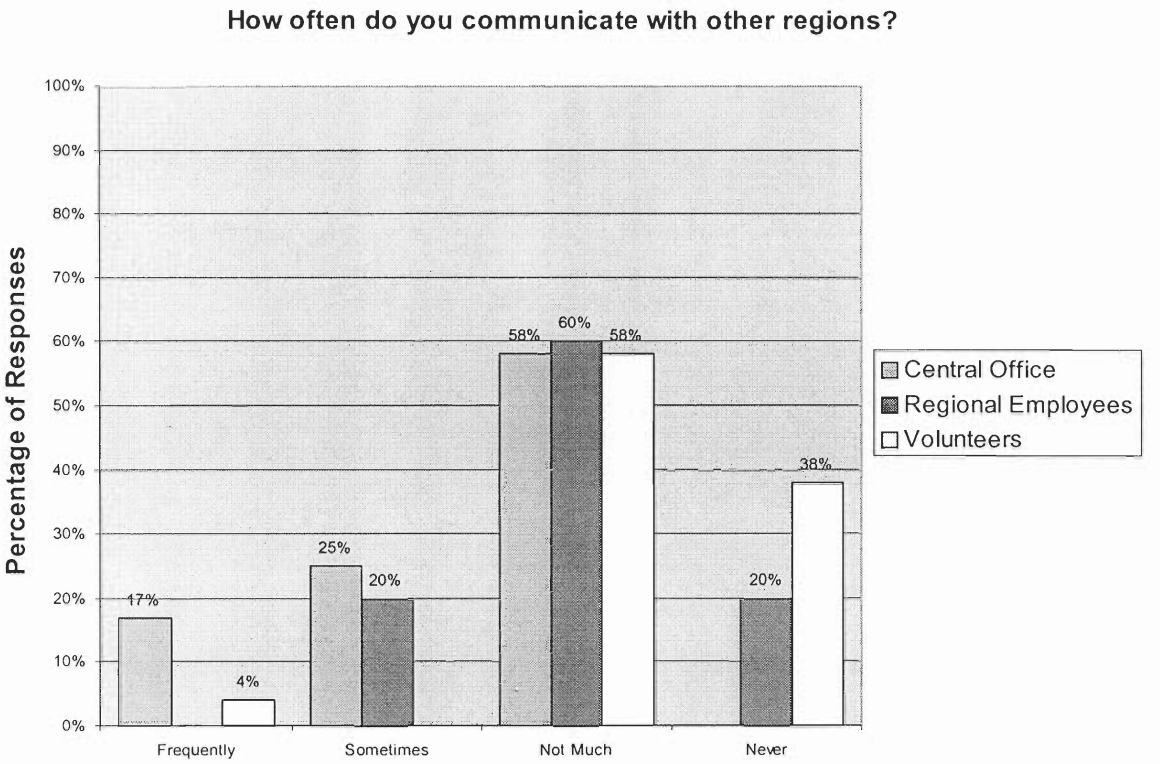

Figure 6 – Frequency of staff members communication with regions outside their own

We developed the categories: 'frequently', 'sometimes', 'not much', and 'never' based upon the most common responses of the interviews. We used the same technique for the other scale questions.

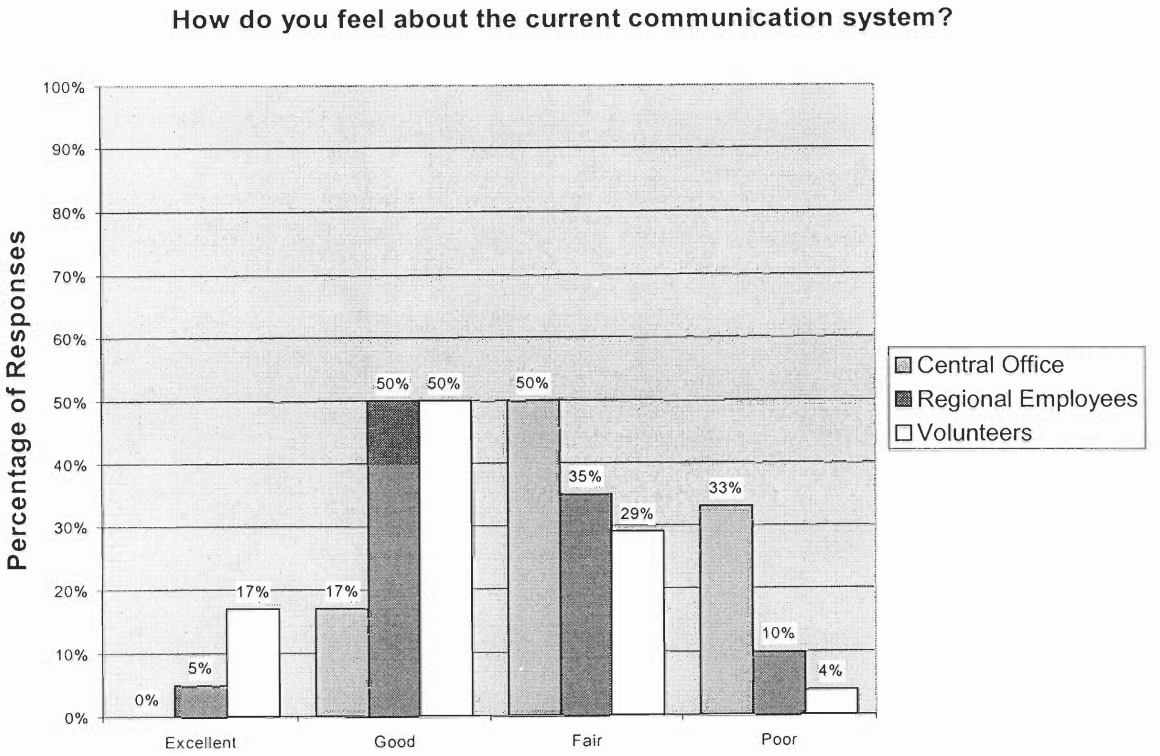

Figure 7 – The staff members' feelings toward the current communication system

This chart is indicative of the opinions of the staff members about the current communication system on a scale from excellent to poor.

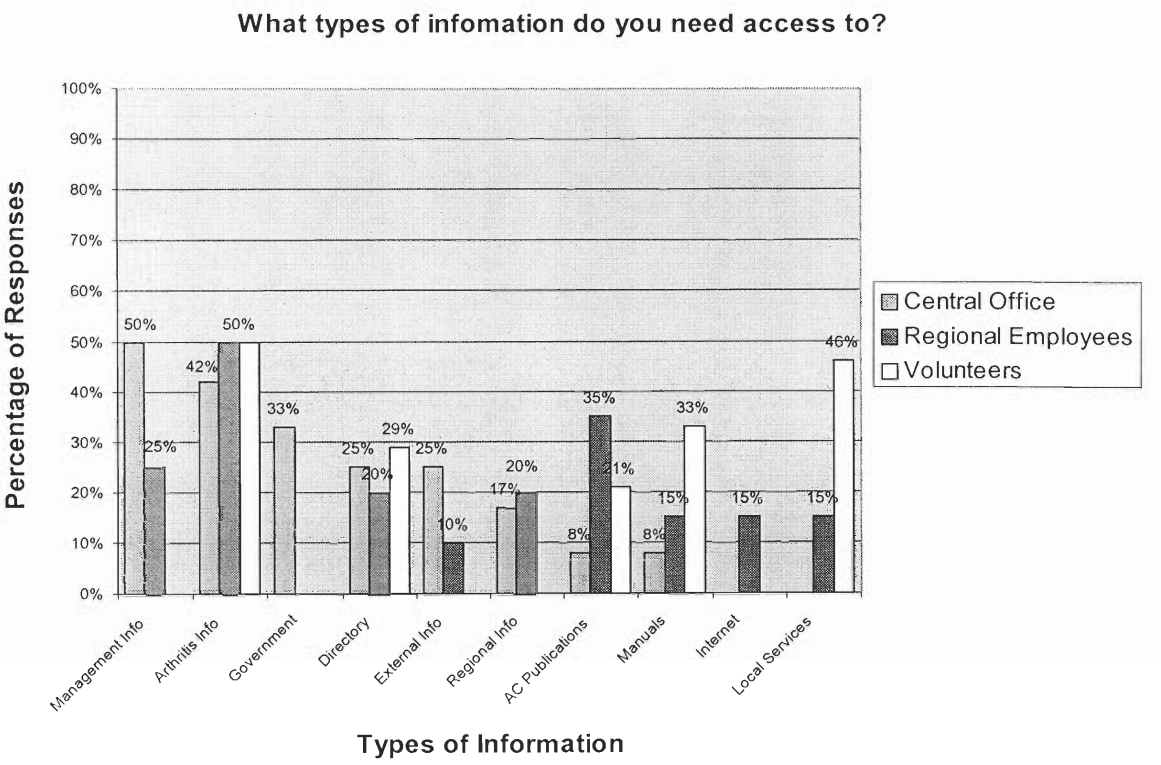

Figure 8 – The types of information that staff members need access to do their job

We received a wide variety of responses for this question so we developed the categories: management information, arthritis information, government information, directory, external information, regional information, Arthritis Care publications, and manuals. Management information includes financial, marketing, inventory, and performance data information. Arthritis information includes medical literature, research, statistics, and information obtained from the information department. Government information includes recent bills and legislation. The directory category includes contact information, job descriptions, and membership information. External information includes press releases, external job specific information, information about other organisations, and information from the Internet. Regional information includes any information obtained from the regional employees or volunteers specific to their region. Arthritis Care publications include any magazines, articles, or leaflets published by Arthritis Care. Manuals include the mission

statement, policies, strategic plans, and training. These categories were used throughout our content analysis.

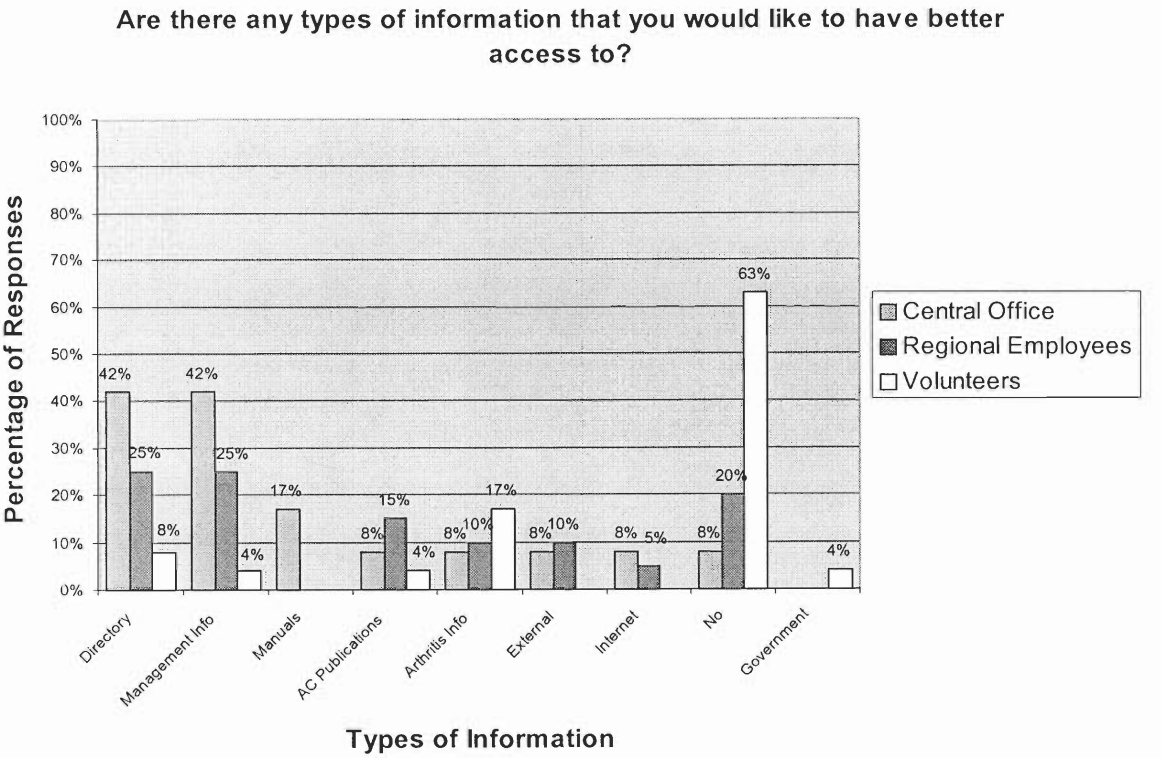

Figure 9 – Types of information that staff members would like to have better access to

The categories for this question are the same as the ones established for the previous question.

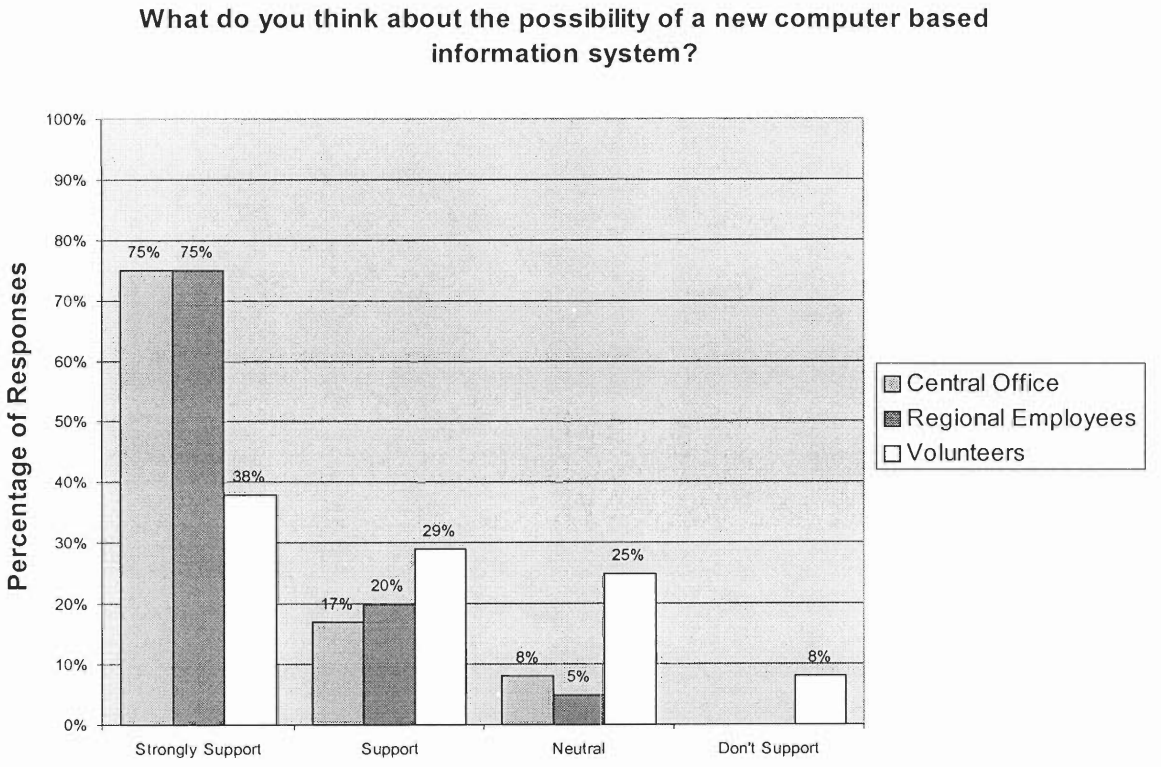

Figure 10 – How staff members feel about a new IT system

The responses we received for this question demonstrated the level of support of the staff members.

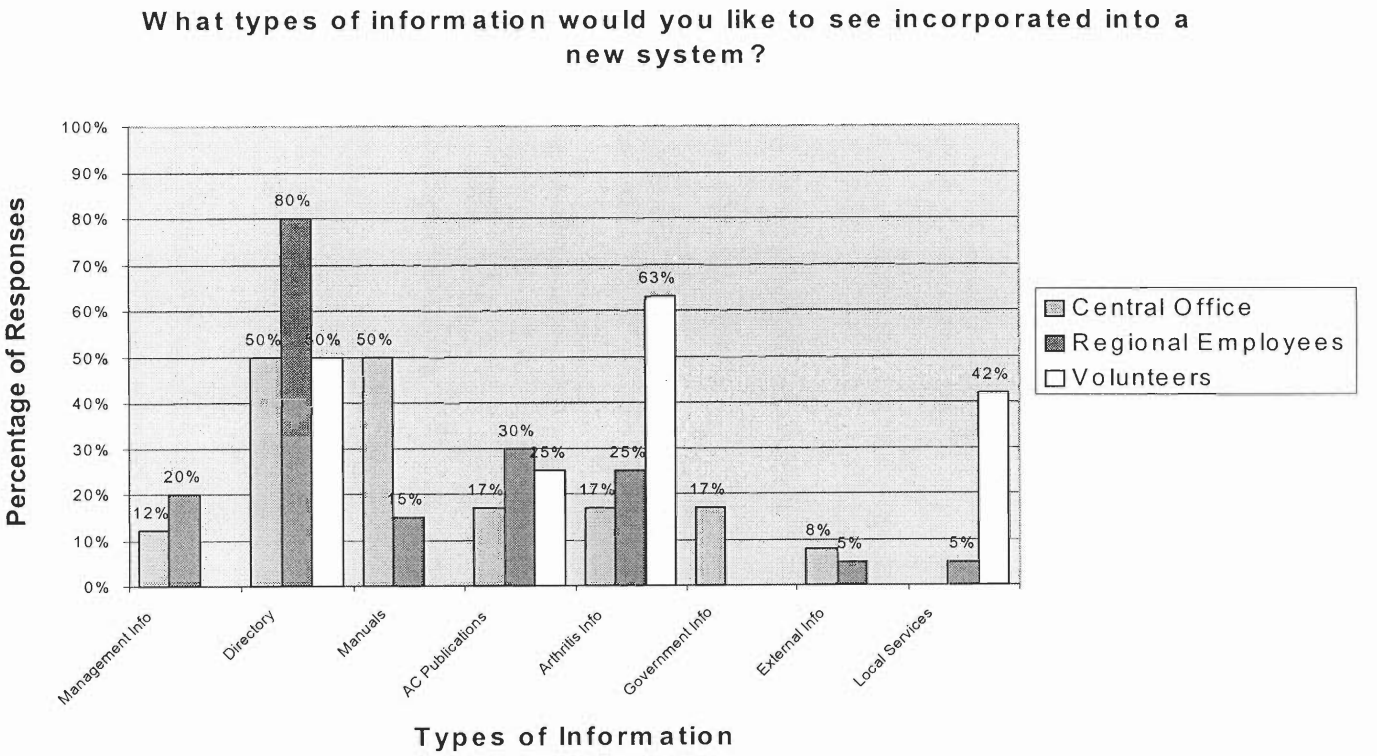

Figure 11 – Types of information that staff members want in a new IT system

The categories of responses to this question are the ones that were previously explained for Figure 8.

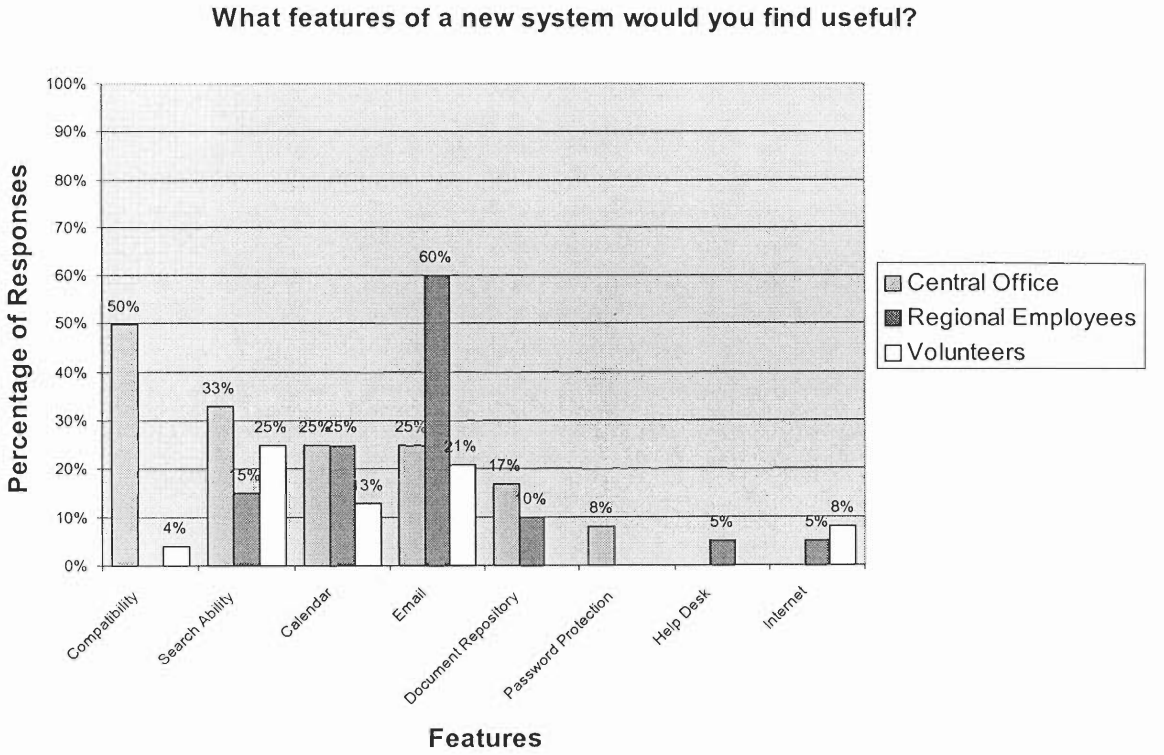

Figure 12 – Features of a new IT system that staff members would find useful

We also made categories for this question to combine similar responses to interpret the data. Compatibility means having the same software or hardware throughout the organisation so that files can be easily transferred. Searchability is a tool that allows the typing of key words, phrases, names, or numbers to get information relevant to the search topic. The calendar category includes diaries, an online calendar of events, and an online bulletin board for postings. A document repository is a place where documents are stored and downloaded by people with access to them when needed. A document repository is simply a way of sharing files. Password protection means restricted access to certain areas of the IT system that require a password. A help desk simply means people that can be contacted if a problem with the IT system arises.

4.2 Focus Groups

Focus groups provided us with a great deal of qualitative information that proved to be extremely useful. Focus groups gave us insight into people's opinions of various issues pertaining to information exchange. However, the data we obtained from our focus groups is less quantitative in nature than our interview and survey data. We were unable to obtain valid data in regards to exactly how many people shared the same opinion about a particular issue. It was not always apparent how everyone felt about a certain issue. For this reason, the data we compiled is not completely accurate. Instead, for our analysis, we counted the number of times an issue was brought up and discussed in our focus groups. For example, five of the six focus groups we held felt that central office's telephone system was in need of improvement. This information is shown in Table 1.

Topic Discussed	**# of Focus Groups**
Communication	
Central office phone system is terrible	5
Communicate by leaving a message and receiving a reply later	3
Communication between central office and regions is poor	3
Don't know hours of part time employees	3
Regional Communication is good	2
One fax machine within central office	2
Staff members favour email	2
Memos are ineffective	2
Volunteers don't know what's going on in organisation	1
Duplicate contact databases in departments	1
Information Currently Used	
Publications	3
Arthritis info	3
Directory	3
Schedule of events	2
Financial	2
Support Services	2
Manuals	1
Better Access to Information	
Directory	5
Event schedules	2
Local services	2
Publications	2
Volunteer info	1
Templates of popular documents (i.e. expense sheets)	1
Arthritis info	1
Branch info	1
Possibility of New Computer Based Information System	
Yes, with training	5
Need up-to-date information	3

Maintain and upgrade IT	2
May be a problem with AC members	2
Training	
Short training sessions over long period of time	5
Helpdesk	3
One week computer course	1
Information Incorporated into Computer Information System	
Directory	5
AC Publications	3
Local services	2
Arthritis info	2
Management info	1
Regional info	1
Calendar	1
Features	
Compatibility	3
Search	2
Email access	2
Internet	2
Password protection	2
Print labels off web	1
Discussion or chat rooms	1
Other Comments	
Website needs updating (i.e. activities)	3
AC spends money on IT but not on maintain it	2
Website needs to be directed towards people with arthritis	1
Millennium & other volunteers should receive same information	1
Development officers need more support from central office	1
Volunteer help with Website	1
Regional IT is needed	1
Central office employees need email	1
No regional liaison within central office for regions	1
Need defined flow of information	1
Documented policies on acceptable use	1

Table 1 - Topics discussed in the focus groups

We conducted six focus groups with a total of 39 Arthritis Care staff members. Our first two focus groups were held with central office employees and involved a total of eleven people. Our third focus group consisted of six employees from the Orton Rigg Hotel in Poole. We also conducted focus groups in the regions of Wales and Southeast England with seven and ten employees respectively. Our final focus group was held with five volunteers from Southeast England.

The discussions in our focus groups also brought up several interesting issues that were not addressed in our interviews. These issues are listed here:

- Arthritis Care's web site needs updating
- Web site needs to be directed towards people with arthritis
- Volunteers could help with web site
- Arthritis Care has trouble maintaining IT
- Duplicate contact databases in departments within Central office
- Millennium & Arthritis Care volunteers should receive the same information
- Volunteers need better notice of events
- Development officers need more support from central office
- Regional IT support is needed
- Central office employees need email
- No regional liaison with central office for regions
- Need documented polices for acceptable use of IT

Three focus groups discussed Arthritis Care's current web page. Everyone who had visited the web site agreed that it does not accurately depict Arthritis Care and desperately needs to be updated. They also mentioned that the web site needs to be better directed towards people with arthritis. In addition, another focus group proposed that Arthritis Care some volunteers work on the web page.

Our focus group held with hotel employees provided us with data unique to the hotels. The hotels are generally self contained and do not need much information from the organisation. The hotel communicates with central office through Arthritis Care's hotel manager and are currently very pleased with the communication system.

4.3 Surveys

We distributed two similar surveys; one to the development officers that attended a conference at the New Mayfair Hotel and one to all of the focus group participants. Thirty-four questionnaires were distributed at a development officer conference at the New Mayfair Hotel in Blackpool, England and we received sixteen responses. We also received 33 questionnaires from the focus group participants. The results of the survey questions were organised into scale and list questions, using the same method as the interview questions.

The surveys were designed so that they could be filled out quickly by giving the respondent choices to circle. Figure 13 is an example of a survey question in which we provided the respondent with choices to circle.

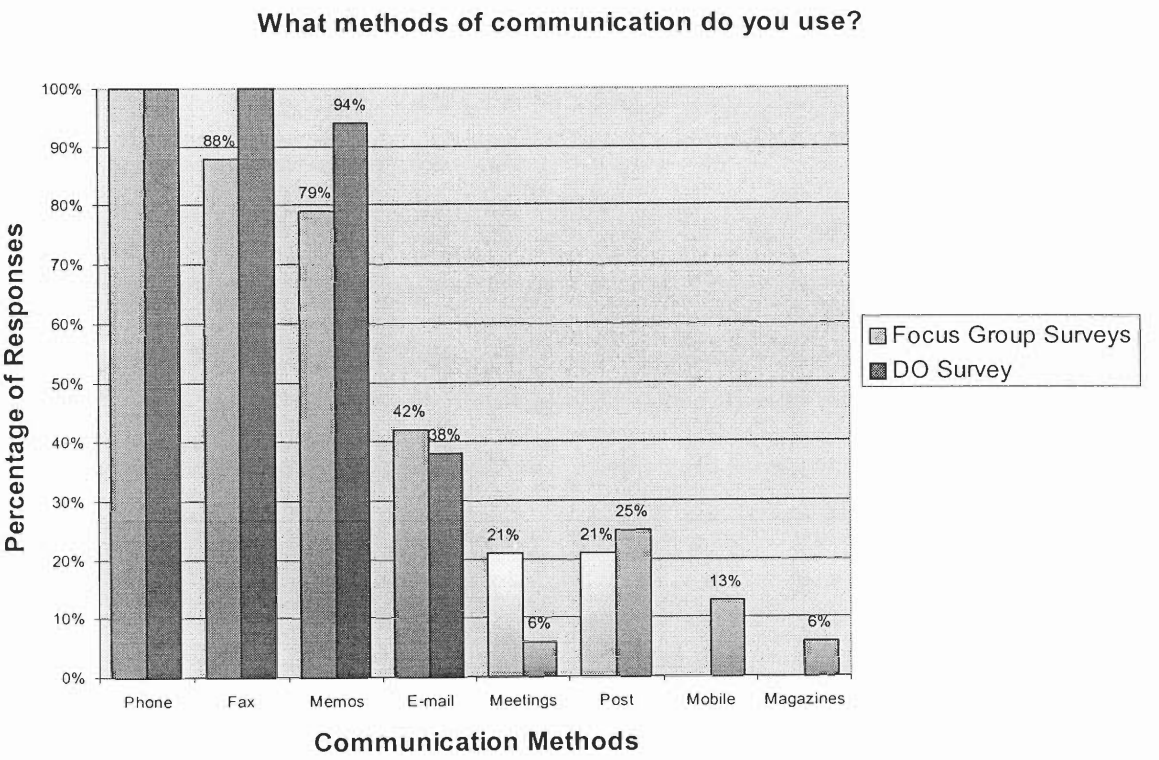

Figure 13 – Methods of communication used by staff members

In this question, the dark bars represent the circled choices and the light bars represent the responses listed under "other."

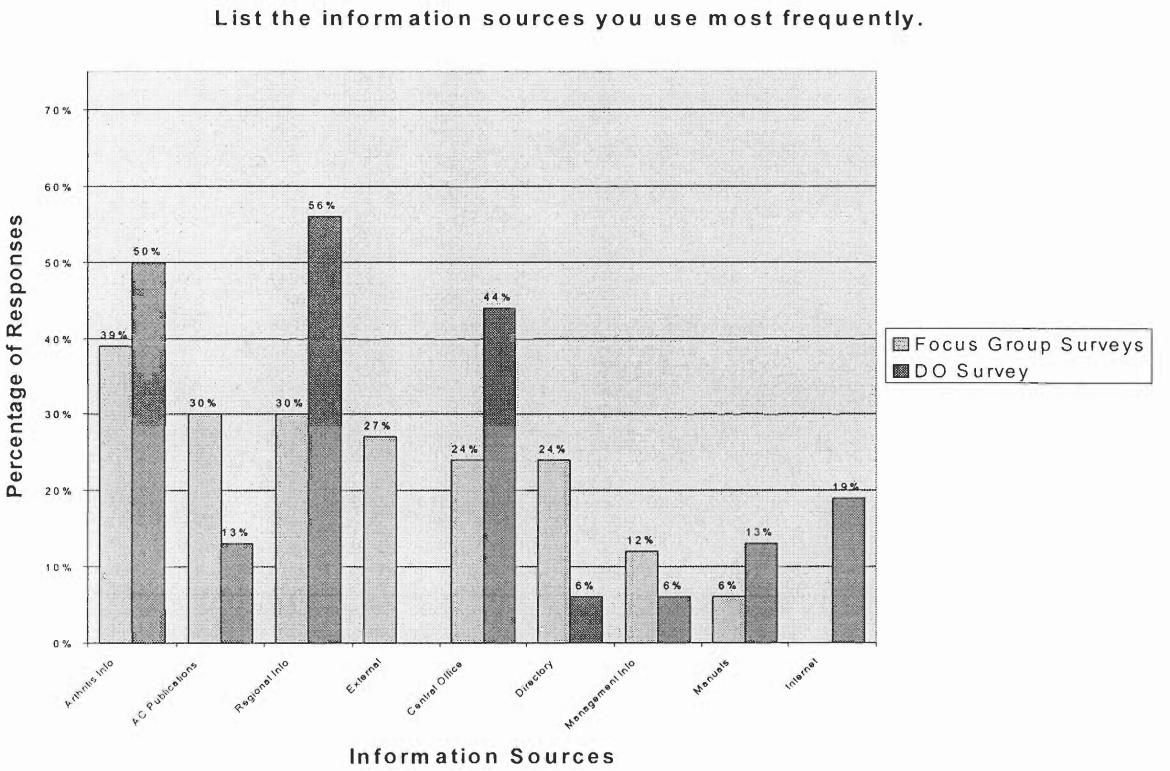

Figure 14 – Information sources used most frequently by staff members

The answers to this question were categorised using the same categories established for Figure 8.

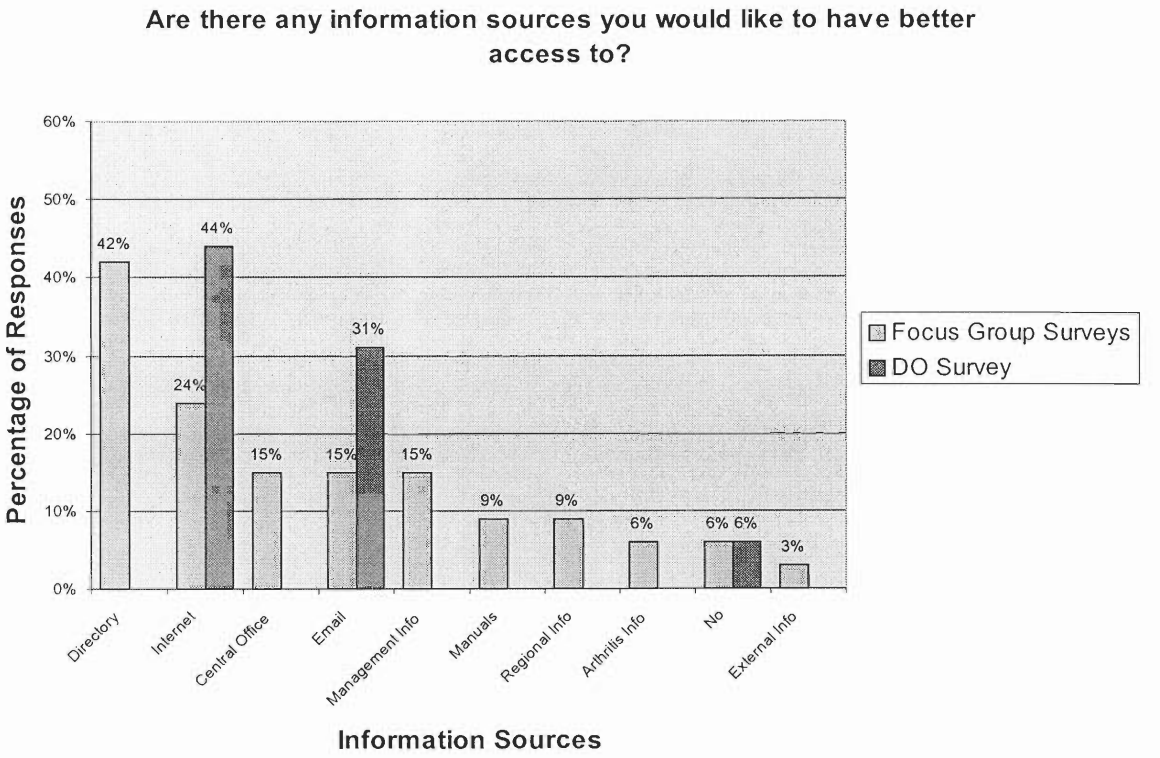

Figure 15 – The information sources that staff members would like to have better access to

This chart shows information sources that the survey respondents would like to have better access to. The categories used for this question are the same as the ones previously established for Figure 8.

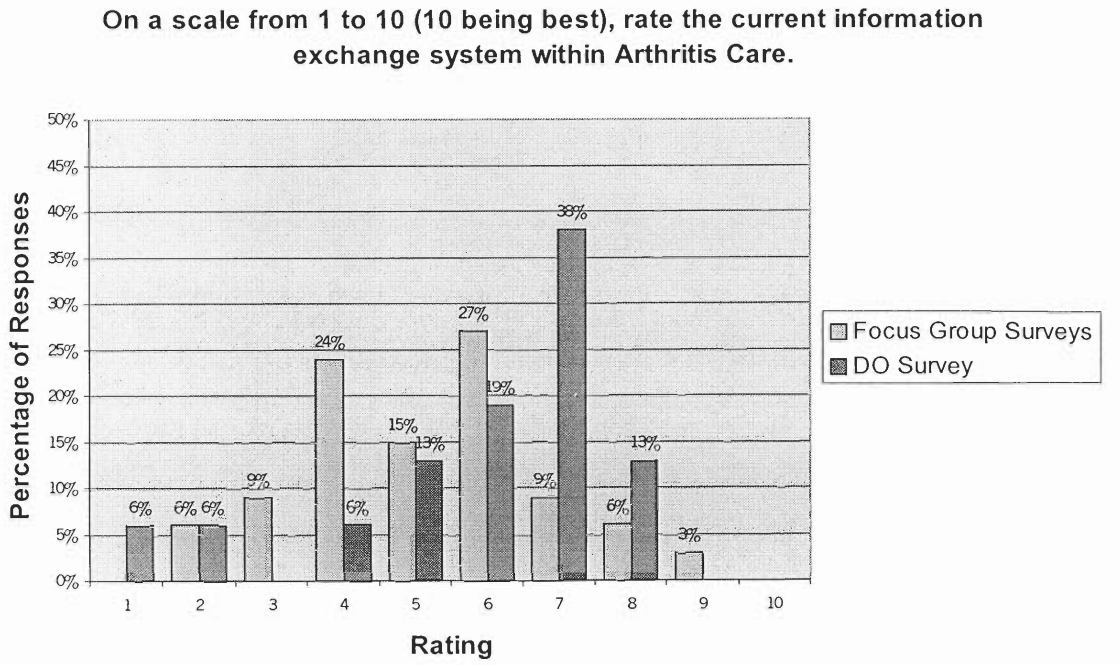

Figure 16 – The staff members' feelings toward the current information exchange system

This question asked the respondents to rate the current information exchange system within Arthritis Care on a scale from one to ten with ten being the best score. The average score of all of the respondents was 5.4.

4.4 Summary of Data

We contacted a total of 114 employees and volunteers through the use of interviews, focus groups, and surveys. We then organised the data into charts that best represented the data by categorising similar responses. Different sets of data were organised separately for different categories of employees and research techniques. Finally, we combined all of the data for each research technique and developed aggregate charts (see Appendices J & K).

5.0 Analysis

We divided the analysis of our data into three main sections. First, we discuss various topics that pertain to the communication within Arthritis Care. Then, we analyse the information needs of Arthritis Care's staff. Finally, we discuss staff members' opinions about implementation of a new computer based information system.

5.1 Communication

Communication among staff members is essential for a successful organisation. It is extremely important that Arthritis Care, with its many regional and home based employees, has a good communication and information exchange system in place. However, employees and volunteers who completed our surveys rated Arthritis Care's information exchange system about a five on a scale of one to ten (see Figure 16). Many people in our interviews and focus groups stated that the communication and information exchange system within the organisation needs to be improved. Improved communication will allow everyone to become more productive and better serve people with arthritis.

Generally, Arthritis Care's staff members communicate often with each other. Two-thirds of central office employees and almost half of regional employees frequently interact with other staff members. Figure 4 shows the type of staff members that communicate with each other. Central office employees mainly communicate with other central office employees, but a third of central office employees also communicate with Arthritis Care's regions. Many regional employees communicate with other regional and central office employees and volunteers. Volunteers mainly communicate with development officers and other volunteers. Hotel employees frequently interact with staff from their own hotel but do not communicate with the rest of the organisation as often. Any communication that hotel employees have with the organisation is usually through the hotel manager who is based at

central office. Also, volunteers do not communicate with other staff members as frequently as employees do.

5.1.1 Methods of Communication

Arthritis Care uses five basic methods of communication: telephone, fax, written, email, and personal contact (see Figure 5). Everyone we spoke with uses the telephone and many use the fax machine to exchange information. Staff members also widely use written communication in the form of letters and memos. Email is not used as much as other methods due to limited access within the organisation. Central office and the four hotels frequently use personal or face-to-face communication. Regional employees do not use personal communication often because most work from home.

Everyone who participated in our interviews and focus groups uses the telephone. Therefore, it is an extremely important component of Arthritis Care's communication system. Participants in our focus groups repeatedly mentioned the inadequacy of the current phone system in central office. Employees within central office complained that it is difficult to obtain a line to make an outgoing call. In addition, regional employees have difficulty contacting people within central office due to the phone system. A new phone system that is currently in the early stages of implementation should solve these problems. The new system will provide additional phone lines making it easy to call in and out of the building and receive incoming calls.

Many of Arthritis Care's employees either work part-time hours or are out of their office often. This makes it difficult to obtain an immediate response and forces staff members to leave messages that people report is quite frustrating. Some employees have said that telephone communication works fine as long as you are prepared to wait for a reply.

Arthritis Care employees also use fax machines extensively. Regional employees seem to rely on fax machines, with 80 percent using them on a regular basis. In addition,

everyone we spoke with at the hotels used fax machines. On the other hand, only eight percent of the volunteers we interviewed regularly use a fax machine. Within central office, however, 82 percent of those involved in our focus groups use fax machines in comparison to only 42 percent of the management employees we interviewed. This difference between management and employees may be explained by the more widespread access of email given to management. Every management employee we interviewed has access to email, in comparison to only eighteen percent of our focus group participants. Instead of faxing documents, those with email access send documents electronically.

In addition, many employees within central office expressed their displeasure with the limited access to the single fax machine. It is located on the first floor of a four-story building. Many employees have arthritis, making it very difficult to travel up and down several flights of stairs to use the fax machine. Since there are almost seventy people working in central office, it can also be very time consuming if there is a queue waiting to use the machine.

Arthritis Care staff members also frequently communicate using written documents. Roughly two-thirds of the central office staff we spoke with communicate using memos. Many of these memos are distributed via post to regional employees. Half of the regional employees we spoke with utilise letters or memos. Only a quarter of the volunteers and a third of the hotel employees we spoke with use letters as a form of communication, preferring instead to use the telephone.

An interesting issue that arose in many of our interviews and two of our focus groups is the ineffective and inefficient way in which memos share information. A large number of memos are circulated around the organisation pertaining to a wide range of topics. People often receive memos on topics that do not concern them. This creates two problems. First, it clutters up a person's desk and second, it causes employees to disregard memos that actually

do pertain to them. Several employees have expressed the need for a system which cuts back on the excess number of memos they receive. This will improve communication because people may read more of the memos they receive and have a better idea of what is going on in the organisation. It will also lower paper, ink, and postage expenses.

Most people feel that email is a very effective method of communication. Management within central office have access and regularly use email as a method of communication. Of the staff who participated in our focus groups within central office, only two out of eleven people had access to an Arthritis Care email address. However, many of these employees still feel that email is the best method of communication and would like to have access in the future. About twenty percent of regional employees and volunteers currently use email as a form of communication. Most of these people do not have an Arthritis Care address but have made arrangements with outside email providers. Most regional employees and even volunteers we spoke with would like to have better access to email.

Participants in two of our focus groups favour the use of email over telephone and written communication (see Table 1). Email does not interrupt the individual they are attempting to communicate with because the recipient can view the message at his or her convenience. It also gives the recipient time to consider the content of the email before he or she comments on it. Those who favour email over memos do so because it does not clutter up one's desk or waste any paper. It is very easy to organise emails into different folders as well as delete unwanted items. Email is also faster than sending a letter through the post.

5.2 Information Needs

We asked Arthritis Care staff members if they were able to obtain the information necessary for their job (see Figure 10). Central office employees generally responded that

they were able to obtain the information, but only after great difficulty. On the other hand, the majority of regional employees have less difficulty obtaining the information they need. In addition, all of the hotel employees and most of the volunteers were always able to obtain the information they need.

Arthritis Care staff members use a variety of information depending on the nature of their jobs (see Figure 9). There are four categories of information that staff members seem to use quite often: management information, directory information, arthritis information, and Arthritis Care publications.

Management information refers to types of information such as financial, marketing, inventory, and performance data. It is also usually specific to an individual job. For example, an accountant needs various types of financial and budget information. More than half of the management employees that we interviewed in central office regularly uses different types of management information. These employees would like better and easier access to this information. However, most of the employees that participated in our focus groups do not normally use this type of information. In Arthritis Care's regions, 25 percent of the employees we spoke with regularly use management information and would like better access to it. Hotel managers also have to deal with management information in the form of financial, accounts, and booking information, but they can obtain it when needed.

Employees and volunteers also need various types of directory information. Directory information includes a staff listing with contact information as well as information concerning Arthritis Care's members. Currently, only a quarter of the central office employees use directory information, while almost half would like to have better, up-to-date information. A quarter of regional employees would also like to have increased access to current directory information. Most volunteers, however, feel that they have sufficient information already and are not concerned with receiving any more. Hotel staff mainly interact with the rest of the

organisation through the hotel manager and are quite satisfied with the directory information they currently have.

The issue of directory information was discussed in five of our focus groups, particularly those within central office (see Table 1). The employees frequently expressed the need for correct, up-to-date contact information for other employees and volunteers. A database is supposed to supply this contact information as well as information concerning Arthritis Care's members. The database department manages this database. However, employees claim the existing database for contact information is not able to supply them with the necessary up-to-date listings. In central office several departments and even some individuals are creating their own contact lists. This means that employees are spending time duplicating what should already have been done by the database department. This is very inefficient and adds to the workload of many employees. It is important to note, however, that no one felt the problem was due to database personnel, but rather, the existing database software is not sufficient. As a remedy, Arthritis Care is currently in the early stages of outsourcing the database with a private company.

The participants in three of our focus groups discussed the lack of defined job descriptions. People complained that they often do not know whom to contact about a particular issue. They reported that it is very frustrating and time consuming when they are referred to numerous individuals, without ever speaking with the correct person. The employees would like to have some type of manual defining each position and its associated tasks. Ideally, this would be incorporated into a directory either online or in printed form.

Information concerning arthritis is very important to many staff members. Almost half of Arthritis Care employees and volunteers we interviewed currently use various types of arthritis information. This type of information includes medical, research, statistical, drug, and benefit information. Much of this information is available in the collection assembled by

the information department, and can be ordered by telephone. A staff member simply calls or sends a memo to the information department. The information manager or assistant then locates the required information and sends it to the staff member requesting the information. Staff members do not have as much difficulty obtaining arthritis information as they have with other types of information. Slightly less than twenty percent of volunteers and only about ten percent of employees would like to have better access to arthritis information. This is comparatively low considering that almost half of the staff members we spoke with currently use the information (see Appendix J).

Some staff members regularly use Arthritis Care's numerous publications. These publications include the various periodicals that Arthritis Care distributes to its members and staff, such as leaflets and pamphlets that are produced on a variety of arthritis related topics. Most staff members we talked to have found that it is not very difficult to obtain these publications when they need them. However, fifteen percent of the regional employees we interviewed and many development officers have complained that it often takes a long time to receive the publications after they have submitted an order. This is because sometimes certain items are out of stock at central office and are in the process of being reprinted. There is no system currently in place within central office that automatically orders additional publications to be printed when stock levels are low. Such a system would shorten the distribution time for publications throughout the organisation.

Arthritis Care staff members also use various other types of information depending upon their jobs. Employees and volunteers use manuals such as the Arthritis Care's regional manual, strategic plan, and training manuals. With the exception of seventeen percent of central office employees, staff members are able to obtain these manuals whenever they need. Central office employees use a variety of government related information and have little difficulty getting it. They also need information regarding activities in the regions. Ten

percent of central office and regional employees would like better access to external information such as information regarding other organisations. Many volunteers and some regional employees also need information regarding local services and products that are available to people with arthritis in their areas. In general, these staff members are not finding it difficult to obtain this information.

5.3 Computer Based Information System

We asked staff members their opinions about the implementation of a new computer based information system. Generally, we received a positive response to this question; almost everyone who participated in our focus groups and three quarters of those employees we interviewed thought it was an excellent idea and would certainly support it (see Table 1 and Figure 10.) The volunteers were less enthusiastic, but only two individuals thought an IT system was a poor idea. In general, the volunteers thought a computer based information system would not be successful due to a large number of older people involved with the organisation. Participants in two of our focus groups also discussed this issue and had similar feelings. Therefore, a computer based information system cannot replace existing methods of communication and information exchange, but rather serve as a complement. An IT system will facilitate the exchange of information for many people, while others simply will not use it. For this reason, a computer based information system must run in parallel with existing information exchange methods in order to ensure that everyone is able to access the information they need.

Participants in five of our focus groups would only support a computer based information system if adequate training were provided (see Table 1). Employees do not want large amounts of money spent on technology if the organisation is unwilling to invest in sufficient training for employees to make effective use of an IT system. The method in which

the training is delivered is important as well. There have been past training programs implemented within Arthritis Care but staff members do not feel that they were effective. The main complaint with the existing methods was that staff members were bombarded with information very quickly and never received any type of follow up. Generally, they would like to receive training in shorter but more frequent sessions.

Staff members also felt that maintenance of an IT system is very important. Participants in two focus groups felt that Arthritis Care does not have a problem purchasing expensive technology, but struggles to provide adequate maintenance to the technology it already owns (see Table 1). For example, employees generally do not have problems finding computers to use. However, the computers currently in use function on a variety of operating systems from Windows 3.1 to Windows 98. There is also a wide variety of word processing programs, from WordPerfect 2.0 to Word 2000, making it difficult to share and edit other employees' documents.

Maintenance of an IT system is not only necessary for computers and software, but also for the information itself. Employees in three focus groups have stressed the importance of having up-to-date information incorporated into an IT system (see Table 1). It is not practical for an organisation to spend a great deal of money on new technology if it is not going to devote the time and resources necessary to maintain the system. An IT system is only as useful as the quality of information it provides.

There is a variety of different types of information that Arthritis Care staff members would like to see incorporated into a computer based information system. Figure 11 and Table 1 show this information. Eighty percent of the regional employees and more than half of central office employees and volunteers that were interviewed would like to see directory information available online. Participants of five of the focus groups also want directory information incorporated into an IT system. Two-thirds of the management employees we

interviewed within central office would like various types of management information incorporated into an IT system. Central office staff and regional employees think that general arthritis information and Arthritis Care's manuals should also be available online. In addition, many volunteers would like information concerning arthritis and local services online.

Arthritis Care's staff members also would like a number of features available in a computer based information system (see Figure 12). Email and scheduling tools were two of the most popular. A scheduling tool allows one to keep a diary online. It also allows an individual to access other people's schedules to see when they are available. There could also be a calendar available that shows events, meetings, and activities that pertain to the entire organisation. GroupWise, Intranet software currently in place within central office, includes email as well as various scheduling tools.

The ability to search an IT system is also considered essential by many staff members. A search tool would allow people to find the information they need very quickly. A search engine could be purchased that would search Arthritis Care's web site and Intranet for specific information. The search feature would encompass all of the Intranet's various databases that store information.

Many staff members also felt that it is very important that the system be compatible throughout the organisation. This would mean that the entire organisation could access the IT system regardless of what type of computer one is using, whether it be a PC or Macintosh. This is necessary for some staff members, particularly the publications department who use Macintoshes.

5.4 Summary of Analysis

The analysis of our data allowed us to complete the identification and prioritisation of information needed by Arthritis Care's staff members, two of our project objectives. We have

identified the different types of information in which Arthritis Care needs and listed them in order of priority. This list is used in our recommendations for the types of information incorporated into an IT system.

Prioritised List of Information Needs of Arthritis Care's Employees

Directory Information – Directory information includes staff member contact information and Arthritis Care member information. Almost every staff member could benefit from better access to directory information. An ideal directory would also include a detailed job description of each position and its associated responsibilities. The hours each person works or is available would also be incorporated into a directory.

Management Information – Management information is very diverse and includes such things as financial, marketing, inventory, and performance data information. Management employees within central office, regional managers and development officers use management information.

Arthritis Information – Arthritis information contains such things as medical, statistical, research, drug, and benefit information. All different types of Arthritis Care employees and volunteers currently use arthritis information, therefore, better availability would benefit everyone.

Arthritis Care Publications – Publications include the various periodicals, leaflets and pamphlets that Arthritis Care produces and distributes. Many regional employees and volunteers currently use these publications and would like easier access to them.

Manuals - Arthritis Care produces and uses a variety of manuals, including the strategic plan, regional, and various training manuals. The entire organisation would benefit from the increased availability of these manuals.

Support Services – Support Services are defined as various services and products available to people with arthritis. This would include information about what is available and how to obtain these services. Regional staff primarily uses support service information.

6.0 Recommendations

We have divided our recommendations into eight sections. The first seven sections describe our specific recommendations on various topics. The final section is prioritised list of our recommendations. The sections of our recommendations are listed below:

- Directory
- Computers
- Internet Access – Email, GroupWise, & Newsgroups
- IT System - Externally Accessed Intranet
- Other Information Exchange Issues
- Training
- Policies & Procedures
- Prioritised List

6.1 Directory

We recommend that the first thing Arthritis Care must address is the improvement of directory information. Directory information consists of employee and volunteer contact information. It could also include Arthritis Care member information. Arthritis Care must ensure that this information is accurate by continually updating the information. This will eliminate the time-consuming practice of individual departments setting up their own contact information databases.

Arthritis Care must also define each position's job description and associated responsibilities. Job descriptions will allow Arthritis Care staff members to determine exactly whom they need to speak with about a certain issue. This will save staff members much time and frustration and promote greater productivity. These job descriptions should be included with the contact information to create a comprehensive directory. Ideally, this directory is

incorporated into an IT system discussed in section 6.4. However, this directory should also be available in printed form and distributed to all staff in addition to being accessible online.

6.2 Computers

Arthritis Care's computers currently use a variety of operating systems and word processing programs. We recommend that Arthritis Care install Windows 95 or a more recent version of Windows (98 or 2000) on all of its computers. We also recommend that Arthritis Care upgrade its word processing and other application programs to Microsoft Office 97 or 2000. These programs allow the transfer of documents and other files between computers with little difficulty. These changes will ensure the compatibility of documents and other files. It will also be easier to train staff members on one operating system and office suite.

In addition, Arthritis Care should provide regional employees with computers if their work would benefit from the use of a computer. This will allow them to use the Internet and email, and connect to an IT system discussed in section 6.4.

6.3 Internet Access

Currently, Arthritis Care has given Internet access to some of its employees. Management and selected employees within central office have Arthritis Care GroupWise email accounts through the central office network. We recommend that all of the computers within central office be connected to the network, allowing employees Internet and email access. Some regional employees are able to connect to the Internet via modem and outside Internet providers. We recommend that Arthritis Care make arrangements with an Internet provider to give all regional employees with computers, Internet access. It will be necessary for Arthritis Care to determine the least expensive plan from the various Internet providers.

6.3.1 Email

Email is an extremely useful method of communication for Arthritis Care and should be available to all employees. Due to the number of staff members working part-time or from home, telephone communication is often ineffective and frustrating. Email will allow staff members to quickly exchange information. In addition, an individual is not interrupted when he or she receives an email but rather has time to reply to the email at his or her convenience. This will allow staff members to prioritise their tasks and ultimately become more efficient. Documents and other files can also be transferred electronically through email as attachments. This would be particularly useful when sending drafts of documents to be reviewed or edited to staff members working from home.

6.3.2 GroupWise

Central office employees with email access currently use GroupWise. In addition to email, GroupWise provides employees with other useful features. GroupWise's personal calendar allows an individual to keep track of appointments and meetings while enabling one to check other GroupWise users' schedules. Employees can also store documents and other various files in their GroupWise accounts. This is especially helpful because GroupWise accounts can be remotely accessed from other computers through the Internet. This enables employees to have access to important files when away from their computer at work.

We recommend that Arthritis Care give all central office employees GroupWise accounts as soon as possible. Arthritis Care owns one hundred licences and is currently only utilising fifteen of them. It is in the organisations best interest to make use of this valuable asset. GroupWise will allow central office employees to exchange information with Arthritis Care staff members as well as people outside of the organisation. Ideally, regional employees would also receive a GroupWise account allowing them to take advantage of the Intranet

software. However, it depends if Arthritis Care can devote sufficient monetary resources to purchase additional GroupWise software licences for all regional employees with computers and Internet Access. With GroupWise, employees have the opportunity to take full advantage of Arthritis Care's Intranet.

6.3.3 Newsgroups

In addition to email, we recommend that Arthritis Care set up various newsgroups within the organisations. Newsgroups will allow employees to post messages over the Internet. Unlike email, newsgroups are set-up with people subscribing to different types of messages. For example, there could be a newsgroup set up for all income development officers. When a message is posted to this newsgroup, it will be sent to all of the IDO's who have subscribed to the newsgroup. By choosing which messages an individual receives, an individual ensures that he or she will not be bombarded with irrelevant information. For this reason, newsgroups can be used as a more effective alternative to written memos or mass emails.

In addition, newsgroups have several other useful features. Newsgroups can be used to have online discussions, especially benefiting Arthritis Care employees working from home. Online discussions also supports Arthritis Care's regional distribution. Newsgroup messages are also centrally held meaning that one can search a central database for relevant messages.

6.4 IT System

We recommend that Arthritis Care set up an IT system to distribute information to Arthritis Care employees, volunteers, members, and the general public. We recommend that Arthritis Care provide access to an Intranet through the organisation's current web site. This

set-up allows the Intranet to be accessed by a password protected login page located on the Arthritis Care web site. This enables staff members working from home to access the Intranet as well as office employees. A diagram of the type of IT system we are recommending is shown in Figure 17.

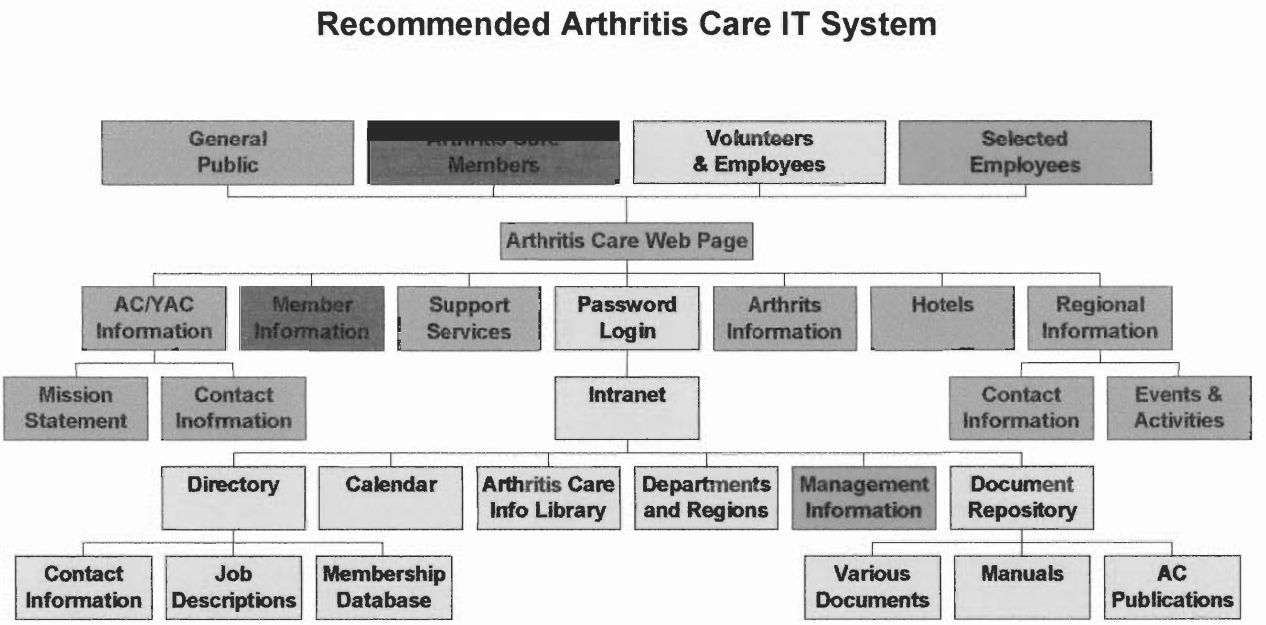

Figure 17 - Recommended Arthritis Care IT system

This figure shows how Arthritis Care's Intranet is accessed through the web site. The level of access to the different types of information is depicted by colour. The general public can only access the information in light blue. As you move to the right, the level of access increases. Selected employees can access what is red as well as everything else.

6.4.1 Arthritis Care Web Page

Arthritis Care currently has a web site that can be accessed via the Internet. Some employees have stated that Arthritis Care must update this web site to better represent the

organisation and its goals. Based upon the opinions and input of these employees, we made recommendations to incorporate various types of information into the web site. However, Arthritis Care's web site has recently been updated. The majority of the information we have suggest has already been added to Arthritis Care's web site. Our recommendations are listed below:

- **Arthritis Care information** – information regarding Arthritis Care, goals, member benefits, and contact information
- **Young Arthritis Care information** – information regarding Young Arthritis Care, goals, member benefits, and contact information
- **Arthritis information** – general information on arthritis that Arthritis Care wishes to share with the public
- **Regional information** – information regarding contact information, events and activities in each region.
- **Hotel information** – information regarding booking, events, and activities at each hotel. Eventually online booking could be used by the hotels.
- **Support Services** – information regarding support services, products, and benefits available to people with Arthritis. Ideally this would be searchable by service and location.
- **Arthritis Care Member Information** – information specific to Arthritis Care members. This part of the web site can be password protected restrict access to members.

In addition, Arthritis Care might wish to place it's publications and information department library on the web site. This depends if Arthritis Care wishes to make these items available to the general public.

6.4.2 Externally Accessed Intranet

We recommend that Arthritis Care's web site provide a gateway to enter an Intranet. This set-up is called an externally accessed Intranet. In addition to central office employees connected directly to the network, an externally accessed Intranet would allow employees working from home to access Arthritis Care's Intranet with a password through the Internet. The Intranet will incorporate various types of information that Arthritis Care employees and volunteers require, but do not want to share on the fully accessible web site. This Intranet should contain a tool that allows employees to search the entire site by typing in key words or phrases. This search tool would allow staff members to find the information they need very quickly. We propose that the following types of information are incorporated into an Intranet:

- **Directory information** – directory information includes employee and volunteer contact information as well as Arthritis Care member information. Employees would be able to obtain staff member's contact information from a computer. Ideally, this would also include a defined job description of each position. This online directory should be fully searchable by name and position.
- **Calendar** – calendar information includes a schedule of events and meetings as well as who is supposed to attend.
- **Arthritis Care information library** – arthritis information compiled by the information department.
- **Document repository** – a downloadable compilation of various documents, templates, manuals and Arthritis Care Publications. This discussed in greater detail in section 6.5.1.
- **Departmental and Regional information** – information concerning members of each department and region. Each department and region would have a separate page.

- **Management information** – information including financial, marketing, inventory and performance data information. This area would be password protected to ensure that only selected employees have access to it.

6.5 Other Information Exchange Issues

6.5.1 Document Repository

We recommend that Arthritis Care implement a document repository available through the Intranet. A document repository is a warehouse that stores different types of documents ranging from memos to Arthritis Care manuals and publications. It could also store templates of various documents such as expense sheets and order forms. An individual could simply download one of these templates and print it out. This document repository should have a search tool that will allow employees to quickly find the information they need. GroupWise can function as a document repository. However, it would also be useful to incorporate a document repository into the externally accessed Intranet for people without GroupWise accounts.

6.5.2 Arthritis Care Publication Inventory

Some regional employees have expressed the need for an inventory system for Arthritis Care's publications. Currently, there is no system in place to automatically order additional copies to be printed when a particular publication's stock is low. This creates a delay as the publications are reprinted. We suggest that Arthritis Care implement a controlled inventory system, possibly computer based, that notifies the distribution department when a publication' s stock is low.

6.5.3 Fax Machines

Arthritis Care currently has only one fax machine within central office. Employees have expressed the need for better access or more fax machines within central office. We recommend that Arthritis Care purchase three additional fax machines and place one on each floor. The additional fax machines would decrease the amount of time employees spend travelling to the machine. Seventy employees using one fax machine often results in many people attempting to use the fax machine at the same time. Three additional machines would alleviate these queues from forming. In addition, more fax machines might encourage employees who currently do not use them to begin to do so.

6.6 Training

We strongly recommend that Arthritis Care invest in computer training for its employees. Employees frequently stressed the need for training in our interviews and focus groups. Current technology including computers, email, and database software are used ineffectively because of lack of training. For Arthritis Care to get the most out of new technology, mandatory training programs should be coupled with the introduction of new Information Technology. We suggest that Arthritis Care conduct an audit on the current IT literacy level for staff members. Based upon this audit, Arthritis Care should provide for training according to the determined level of knowledge.

Staff members need training in two specific areas: basic computer knowledge and specific program training. Basic training includes general techniques such as turning on a computer and troubleshooting minor hardware and software problems. Employees should begin with this type of training before going on to specific program training. Arthritis Care staff members will require training in several different programs. Employees with GroupWise accounts will need to receive training in order to make effective use of this

powerful software package. Employees should also be trained in the use of Windows 95 and its successors. Additionally, most employees would benefit from Microsoft Office training, specifically in Word and Excel. Additional employees would also need to be trained in the use of job specific programs. For example, an accountant will need to be trained to use accounting software effectively.

The timeframe in which training is delivered is very important. Staff members have repeatedly expressed that they would like to be trained in short but numerous sessions. An example of this method of training would be training sessions twice a week for half an hour. This method allows staff members to practice what they have learned between sessions and does not bombard them with too much information in a short period of time.

We also recommend that staff members are trained in small groups. If trained in this manner, staff members will be able to learn from each other's mistakes and questions as well as help each other between sessions. Staff members will not learn as effectively in training sessions with large groups. Individual tutoring, on the other hand, would give personalised attention, but is not cost-effective.

The ideal solution for training employees would be to create and fill a position to run a computer help desk. This person would be in charge of training the organisation's employees in various IT related areas. This person would also be available to troubleshoot and answer IT related questions. One person responsible for IT training and queries would ease the workload of the rest of the IT department and allow the department to become more productive. However, we realise that Arthritis Care might not have the resources available to create such a position. If this is the case, Arthritis Care must consider arranging for staff members to attend classes run by professional training consultants.

6.7 Policies and Procedures

In addition to recommending technological advances and training, we believe that policies and procedures should be implemented. We recommend policies in three areas: information network, email, and software. These policies should include procedures that will ensure consistency in technique throughout Arthritis Care. Generally, these policies are created by outside contractors such as law firms. However, we would like to highlight various topics that we feel should be included in each policy. Note that these are not the only policies that should be consider, however, we feel that these are the most important in the early implementation of a new IT system.

The information network policy should contain provisions for the protection of sensitive information located on the network. The general message of the policy should state that information on the network, such as member information, should be kept confidential. Thus, the exchange of this information outside of the organisation is in direct violation of policy and punishable in a court of law.

In regards to policies for email, we feel that there are three key issues that need to be incorporated into a policy. First, we feel that the policy should state that email is the property of the organisation and therefore, subject to unannounced inspection by upper management. Second, the policy should include a statement concerning the sensitive information that may be found in emails. Again, information that is sent in emails within the organisation may incorporate sensitive information. Therefore, the policy should outline procedures of sending sensitive email to people outside of the organisation. Finally, the email policy should include provisions for the misuse of email. Organisational email should be used for job related information. The excessive use of email for personal affairs should be prohibited. In addition, provisions should be made for staff members' protection in regards to profanity, harassment, and defamation through email.

In addition, there are certain issues that we feel should be incorporated into a software policy for Arthritis Care. First, we recommend that a procedure should be created to ensure that software copyright laws are being enforced. This procedure could designate a person that installs software and registers it with the manufacturing company. The software policy also could create a procedure that mandates periodic computer maintenance and training within the organisation. Examples of policies in the areas of information network, email, and software can be found in Appendix B. Parts of these policies could be incorporated into Arthritis Care specific policies.

6.8 Prioritised Recommendations

We have listed our recommendations in order of the priority that we feel Arthritis Care should give each issue. It is important to note however, that many of these recommendations are overlapping and should be carried out simultaneously. Arthritis Care should not address one issue at a time but incorporate these prioritised recommendations into an overall strategy that would ultimately improve the organisation's exchange of information. Again these recommendations are:

- Develop an up-to-date directory that includes staff member contact information and detailed job descriptions.
- Purchase 3 additional fax machines.
- Begin to update central office computers – upgrade to Windows 95 or 98 and Office 97 or 2000 and connect computers to network.
- Give central office employees with computers (operating on Windows 95 or 98) GroupWise accounts– only fifteen out of one hundred licences currently in use.
- Give regional employees with computers (operating on Windows 95 or 98) and Internet access GroupWise accounts.

- Begin to train employees in GroupWise.
- Develop Arthritis Care publication inventory system.
- Begin to give additional regional employees computers, Internet Access, and GroupWise.
- Administer general computer knowledge audit.
- Begin to train employees in accordance with their computer knowledge determined from the audit.
- Develop procedures and polices for an information network, email, and software.
- Begin to the construction of an externally accessed Intranet.
- Implement an IT helpdesk.
- Train employees in the use of the Intranet.

7.0 Conclusions

For our Interactive Qualifying Project (IQP), we assessed the information needs within Arthritis Care, prioritised them, and made recommendations towards an Information Technology based solution. The IQP is a project that emphasises technology and its interaction with society. In our project we specifically looked at how the information exchange between employees and volunteers in Arthritis Care can be improved through the use of current technology that they possess as well as technology that may be available to purchase.

In order to determine what type of recommendations we could present to Arthritis Care to improve their communication, we used various techniques to gather data. We began with an analysis of Arthritis Care's organisational structure. From there, we began to conduct interviews, focus groups, and surveys.

The interviews, focus groups, and surveys supplied us with valuable data pertaining to communication, information needs, and the implementation of a new computer based information system. We analysed the data using content analysis, charts, and tables. From the charts and tables we were able to prioritise the information needs of Arthritis Care staff. Next, we made recommendations on how they could improve existing methods of communication with the current technology that they possess, as well as how new technology could be beneficial.

The goal of Arthritis Care is extremely valuable to society and we want to help insure its continued effort in the future. We hope this project helps Arthritis Care improve productivity throughout the organisation to accommodate regionalisation and better serve its members. Arthritis Care is a charity making use of limited resources, which is why our recommendations are not limited to purchasing new technology, but include suggestions on how such things as training and consistency of procedures can save time and money. We

have given Arthritis Care solidly backed overviews of the information needs of their staff and volunteers with idealistic and realistic goals on how to improve the current information exchange system. We realise that this is just the beginning of a long process of change, and we are thankful for the opportunity to provide results that are indicative of all of the Arthritis Care employees and volunteers.

Glossary

AC: Arthritis Care

ACDO: Arthritis Care Development Officer

Arthritis: Inflammation of the joints.

Client-server networks: Computer networks in which some nodes (servers) are dedicated to performing certain tasks in behalf of the nodes (clients) accessed by the users.

Database: A generic term referring to any conceivable medium for the storage of information and maintenance of data relationships.

Database management system (DBMS): The software that maintains databases and provides access to them.

Directory: A listing that includes staff and member contact information as well as job descriptions.

Email: Electronic mail. A form of communicating on a computer-based network.

End-user: The individual that uses the computer for performing ones own functional job tasks.

Frame: The group of people being researched in order to obtain knowledge.

Hierarchy: The classification of a group of people according to ability or economic, social, or professional standing.

Knowledge Worker: Worker whose job it is to use and interpret information to make decisions.

IDO: Income Development Officer

Information systems (IS): An electronic data processing system.

Information Technology (IT): Any type of technology that organises and processes information.

Qualitative: Nature and description of things, i.e. feelings, characteristics, and meanings.

Quantitative: Counts and measures of things.

Server: A networked computer usually dedicated to serving resources on a network.

Staff members: Volunteers and employees of Arthritis Care.

Stakeholders: People and groups of people of an organisation who are depending on the organisation in order to achieve their personal goals and on whom the firm is depending for its existence.

TDO: Training Development Officer

YAC: Young Arthritis Care

YACDO: Young Arthritis Care Development Officer

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Appendix A - Contact Information

Our sponsor:

Arthritis Care

18 Stephenson Way
London NW1 2HD

Tel: 0171 916 1500
Fax: 0171 916 1505

Our liaisons:

David Wright
Dave@arthritiscare.org.uk

Cathy Debenham
CD@arthritiscare.org.uk

Judith Smart
JS@arthritiscare.org.uk

Appendix B – Policies and Procedures

POLICY FOR E-MAIL AND WORLD WIDE WEB USE

Company ("Company") allows some of its employees to use E-Mail and/or the World Wide Web on an as needed basis. From the Internet to inTRAnets, from local to wide area LAN networks, technology is providing Company with powerful and ever-emerging and evolving tolls to do business. This policy addresses some of the issues being created by the use of these technologies. Strict adherence to and express knowledge of this policy will be required.

What is E-Mail?

E-mail is. Of course, electronic mail. E-Mail has been defined as: "Messages sent and received electronically via telecommunication links, as between microcomputers or terminals." The American Heritage Dictionary of the English Language, Third Edition [from Microsoft Bookshelf 1994]. E-Mail facilities allow users to create, send, forward, reply to, transmit, store, hold, copy, blind copy, download, display, view, read, or print computer messages, files, graphics, and/or executable files across computer network systems between or among individuals or groups such as electronic bulletin boards, listservers, and newsgroups. You can send an email message to one person or 4 million people at the same time. Email may also be sent and received via email equipped telephones and other electronic devices.

What is the World Wide Web?

The World Wide Web is the graphical user interface to the Internet. The Internet is a world wide network of computers and networks joined by universities, businesses, military organisations, governments and their agencies, and other institutions (i.e. private and public museums, associations, clubs etc.). The Web is also an emerging source of virtual, multimedia and 3D interfacing, real-time chatting, audio and video teleconferencing, facsimile transmitting, internet telephony for long distance calling, corporate intranet presence, and virtual classrooms for business and educational institutions. The technology in this area is developing so rapidly that this definition will most probably be obsolete soon after this policy is issued. As such, for the purpose of this policy the term "World Wide Web" shall include other abilities or technologies generally considered to be part of what the Web "is" even if not listed above.

The Rules.

1. E-mail and the Web are tools of the business meant to be used to advance the business in ways consistent with the positive image and standing of Company in the world. Some limited personal use of email or the Web (like the telephone) will be acceptable but it should be kept to minimum. Spending time learning email and the Web is encouraged, but excessive time spent in this medium (especially if not directly related to current projects) will not be tolerated.

2. Email and Web access have been installed by Company to facilitate business communications and access to information. Although each employee allowed access has an individual password, the password belongs to Company and the contents of email messages or other web-based data or information are accessible at all times by Company management for any business purpose. These systems may be subject to periodic

unannounced inspections, and should be treated like other shared filing systems. All system passwords and encryption keys must be available to Company management, and you may not use passwords that are unknown to your supervisor or install encryption programs without turning over encryption keys to your supervisor. Employees should not assume their password is a protection from the company's rights as stated herein.

3. **ALL EMAIL MESSAGES OR OTHER WEB-BASED DATA OR INFORMATION, AND RECORDS OF ONLINE SESSIONS AND THEIR RESULTS ARE COMPANY'S RECORDS. THE CONTENTS OF EMAIL AND WEB-BASED INFORMATION MAY BE INTERCEPTED, REVIEWED, AND/OR DISCLOSED WITHIN EIKOS WITHOUT YOUR PERMISSION. THEREFORE, YOU SHOULD NEVER ASSUME THAT YOU EMAIL MESSAGES OR OTHER WEB-BASED DATA OR INFORMATION, OR THE HISTORY OF YOUR WEB-BASED ONLINE SESSIONS, ARE PRIVATE OR CONFIDENTIAL. THEY ARE NOT. NO EMPLOYEE AT EIKOS HAS ANY PRIVACY RIGHTS IN THEIR EMAIL OR WEB-BASED ACTIVITIES.**

4. Company reserves the right in its sole discretion to access, review, copy, delete and disclose all messages and/or data sent over its email, intranet and internet systems, without regard to content. You should not use email to transmit any messages you would not want read by a third party, or use the Web in any way that you would not want disclosed to your fellow employees. For example, you should not use Company email for gossip, including personal information about yourself or others, for forwarding messages under circumstances likely to embarrass the sender, or for emotional responses to business correspondence or work situations. You should not use email or the Web to subscribe to newsgroups unsuitable for business purposes.

5. Primary purposes of this policy are to allow for the retrieving of business-related information, unauthorised disclosure or use of confidential business information, trouble-shooting hardware and software problems, preventing unauthorised access and system misuse, assuring compliance with software copyright and distribution policies, and complying with legal and regulatory requests for information. Every employee is encouraged to be ever vigilant in assisting Company in the proper enforcement of this policy both effectively and consistently.

6. Employees should never attempt to gain access to any email messages or other web-based data or information not addressed to them, except as stated above by management authorised too so.

7. Employees are prohibited from the unauthorised use of the passwords and encryption keys of other employees to gain access to the other employee's email messages or other web-based data or information, except by management authorised to do so. Employees are also prohibited from creating any passwords or encryption without management's prior written approval and sharing with management the keys for such passwords or encryption.

8. Confidential information should never be transmitted or forwarded to outside companies or individuals not authorised to receive such informaio, or to Company employees who have no need to know such information.

9. Sending unencrypted email or attachments is like sending a postcard. Appropriate encryption technologies must be used when transmitting any email messages or other web-based data or information containing trade secret materials to any other party. For international encrypted transmissions first obtain clearance from Joseph Piche before initiating the transmission (on international matters encryption technologies are considered "munitions" and may not b exported without a specific export license).

10. Our domain is **www.eikos.com**. Your email address will be something like "you@eikos.com". As such, you are a representative of Company even in your email, newsgroup, chat, and other communications with the outside world. Never disgrace or embarrass Company in your dealings on the Internet.

11. Be very careful of viruses. Any message of file that you download from sources you trust, and check with virus-scanning software when you do download. Ask someone if you have questions. When in doubt, do not read that email or download that file. One virus can be devastating. We are all responsible for the health of the network.

12. Email messages or other web-based data information within the company should not be transmitted outside the company or to other employees except on a "need to know" basis.

13. Email or Web-based technology are not to be used in any way that is disruptive to the operation of Company or offensive to others or to disclose or use or misappropriate any of Company's trade secret or confidential business information.

14. Never use email or Web-based technology to disparage or harass anyone on the basis of his or her race, origin, sex, sexual orientation, age, disability, religion, or political beliefs.

15. Email or Web-based technology are not to be used to gain any unlawful or improper access anywhere.

16. Email or Web-based technology are not to be used to copy and/or transmit any documents, software, or other information protected by the copyright laws, without proper authorisation by the copyright owner.

17. Email or Web-based technology are not to be used in any communication that (1) is defamatory, obscene, offensive or harassing, (2) discloses personal information without authorisation, or (3) is in violation of Company policy.

18. Email or Web-based technology are not to be used for purposes that could reasonably be expected to cause, directly or indirectly, excessive strain on any computing facilities, or unwarranted or unsolicited interference with others' use of their systems. Such uses include email chains; "spamming" of listservers or similar broadcast systems for purposes beyond their intended scope to amplify the widespread distribution of unsolicited email, an, "letter-bombing" identical email repeatedly to one or more recipients to interfere with their system.

SOFTWARE POLICY

Company Inc. ("Company") licenses commercial software. The purpose of this policy is to explain how we can prevent copyright infringement and to protect the integrity of Company's computer environment from viruses.

Policy Guidelines

1. **General Statement of Policy; Appointment of Software Manager.** It is the policy of Company to respect all computer software copyrights and to adhere to the terms of all software licenses to which the company is a party. Company has appointed a Software Manager who is charged with the responsibility for enforcing these guidelines.

   Company employees are to use all software in accordance with their license agreements. Please do not duplicate any licensed software or related documentation for use either on Company premises or elsewhere unless Company is expressly authorised to do so by agreement with the licensor. Company is dedicated to fully complying with all copyright laws and treaties applying to any software used by the company.

   Company must avoid any use of any unauthorised copies of software. Illegally making, us in, or otherwise acquiring unauthorised software is a serious matter which upon detection may lead to serious results, including but not limited to employee discipline up to immediate termination if appropriate as decided by the company in its sole discretion.

   Employees may not give software to any outsiders including clients, contractors, customers, and others. Company employees may use software on local area networks or on multiple machines only in accordance with applicable license agreements.

   If you believe that any employee has misused software within the company, please notify the Software Manager.

   All software used by the organisation on company computers will be properly purchased through the appropriate procedures.

2. **Approval of Software.** Prior to purchasing software, please obtain the approval of your supervisor and then follow established company procedures for the acquisition of other company assets.

3. **Acquisition of Software.** In order to ensure that Company has a complete record of all software that has been purchases for company computers, all software acquired by Company must be purchases through the Finance Department. Software may not be purchased through employee corporate credit cards, petty cash, or travel and entertainment budgets. Software acquisition channels are restricted to ensure that Company can register, support and upgrade such software accordingly.

4. **Registration of Software.** When software is delivered, it must be first delivered to the Software Manager to complete registration and inventory requirements. The software manager is responsible for completing the registration card and returning it to the software publisher. Software must be registered in the name of the company and department in

which it will be used. Because of personnel turnover, software should never be registered in the name of the individual user. The software manager shall maintain a register of all of the company's software and shall keep a library of software licenses. The register should contain: (a) the date and source of software acquisition; (b) the location of each installation as well as the serial number of the hardware on which each copy of the software is installed; (c) the name of the authorised user; (d) the existence and location of backup copies; (e) the software product's serial number.

5. **Installation of Software.** After the registration requirements above have been met, the software may either be installed by the Software Manager or the individual who will be using the software. Manuals, tutorials and other user materials should be provided to the user. A copy of the applicable license agreement shall be provided to the user. Once installed on the hard disk, the original diskettes shall be kept in a safe storage area maintained by the software manager.

6. **Home Computers.** Company's computers are company assets and must be kept both software legal and virus free. Only software purchased through the procedure outlined above may be used on company machines. Employees are not permitted to bring software from home and load it on company computers. Generally, company owned software cannot be taken home and loaded on an employee's computer if it also resides on the company's computer. If an employee is to use software at home, the company should purchase a separate package and record it as a company asset in the software register. However, some software companies provide in their licensing agreements that home use is permitted under certain circumstances. Before taking any software home, please check with the Software Manager.

7. **Shareware.** Shareware software is copyrighted software that is distributed freely through bulletin boards and on-line systems. It gives users a chance to try software before buying it. If you try a Shareware program and continue using it, you are required to register it or purchase the Licensed version. It is the policy of Company to pay shareware authors the fee they request for use of their products. Registration of shareware products should be handled the same way as commercial software products.

8. **Freeware.** Freeware software gives users a change to try software and continue to use it for no payment at all or just for some acknowledgement (a thank you note, a postcard, some suggestions, comments, etc.). Please do not download any Freeware software without obtaining prior approval from your supervisor and notifying the Software Manager. Freeware products should be handled the same way as commercial software products.

9. **Periodic Audits.** The Software Manager will conduct audits periodically of all company PC's to ensure that the company is in compliance with all software licenses. During the audit, the company will search for computer viruses and eliminate any that are found. Please be cooperative when being audited.

10. **Maintenance.** In order to protect the Company environment from computer viruses, Employees should conduct a virus scan on the first working day of every month using either Norton's Anti-Virus or McAfee Virus Scan. Prior to conducting the scan, please download any virus updates. If you need assistance, please contact the Software Manager. Any additional questions should be addressed to the Software Manager.

POLICY

Name: **Arthritis Foundation Business Information Network Users Procedures (AFBIN)**

Recommended By: **Technology Subcommittee / Business Group**

Adopted/Revised:

Approved By:Board of Trustees, May 1, 1999

INTRODUCTION

The AFBIN is an open architecture environment providing all Arthritis Foundation users access to applications, tools and information on the network. Within the system, the rights to modify information will be more restrictive than the rights to view information. However, with the exception of financial worth, payroll data and any other specific information defined by the Foundation, the ability to view information will be granted to all users.

With these rights to see information within and beyond one's own business unit (chapters and the national office) comes the responsibility to steward and protect the confidentiality of those individuals within the database and the proprietary rights of the information owned, stewarded and managed by the Arthritis Foundation. The personal conduct of any individual or entity with respect to the information within the AFBIN shall be governed by this policy, as approved and modified from time to time by the Board of Trustees and House of Delegates.

All information contained within the AFBIN and any such information held by the Foundation is deemed to be the proprietary property of the Arthritis Foundation for its sole use. Any use of such information for personal gain or for the use of others outside the Arthritis Foundation is strictly prohibited unless the release / use of information is part of an Arthritis Foundation approved project. All Arthritis Foundation employees and those volunteers granted access to the AFBIN and any of the information contained therein must:

1. Be made aware of this policy;
2. Handle all information within the system in a confidential and professional manner;
3. Guard and protect the rights of individuals and businesses whose names and information are contained within the systems;
4. Refuse to share any of the proprietary information owned, stewarded or managed by the Foundation with any source outside the Arthritis Foundation unless the release / use of the information is part of an Arthritis Foundation approved project; and
5. Obtain no personal gain nor allow anyone associated with him or her to obtain personal gain

from the use of any proprietary information owned, stewarded or managed by the Foundation.

Any violation of this policy will be considered serious and appropriate action should be taken. Depending upon the gravity of the offense, action taken may be as lenient as a verbal reprimand with documentation added to an individual's personnel file, or as serious as immediate dismissal and/or prosecution.

The following process will be utilized to address any misuse of information and violations to this policy.

- The chapter has the authority and responsibility to deal with any case of policy violation within the chapter. However, any and all instances are to be reported to the National Office to the Group Vice President, Business Information Management. In turn, these violations will be reported to the Technology Subcommittee, National Operations Committee and/or any other body as may be specified from time to time by the Board of Trustees.
- Should a violation be considered to have been improperly addressed; to have jeopardized the integrity of the systems; or have compromised the proprietary property of the Arthritis Foundation, the Technology Subcommittee, or other appropriate body will review the facts and make its recommendation to the chapter/national office.
- Should the chapter feel any recommended action to be unwarranted or too severe, it may appeal the recommendation to the Board of Trustees.

The Arthritis Foundation is committed to performing its stewardship and fiduciary responsibilities to the very best of its abilities, and to assuring its donors, individuals with arthritis, corporate partners, officers, directors, volunteers, staff and all constituencies that the information they provide us will be managed in a controlled and confidential manner.

User Understanding
Arthritis Foundation

By signature of this document, I acknowledge that I have read and understand the Arthritis Foundation Business Information Network (AFBIN) Users Procedures. As an employee/volunteer of the Arthritis Foundation I understand the importance of maintaining the integrity and confidentiality of information on the Arthritis Foundation Business Information Network and will use this information with accordance to this understanding.

I also understand that any violation of the AFBIN Users Procedure is serious and may result in a range of disciplinary actions as outlined in the AFBIN Users Procedures. This policy is subject to modification by the Board of Trustees and House of Delegates, and I agree to act in accordance with such modifications upon receipt of notice.

Please sign and date below:

Name: _____ Signature: _____
(Please Print)

Chapter/Branch/National Office Department: _____

Date: _____

This letter of understanding should be kept on file.

ARTHRITIS FOUNDATION
Memorandum

TO: **Chapter Presidents**
FROM: **Charles Shepherd**
DATE: **September 15, 1999**
SUBJECT: **Monthly Archival Tape Back-ups**

A few weeks ago, I alerted you by e-mail that I would be sending the enclosed two monthly archival backup tapes for your server. Each tape has months listed for use.

Please give these tapes to the person in your office (or branch in some cases) who is in charge of the nightly server back-ups. Please ask the person to check off the applicable month and use the archival tape instead of your regular back-up tape on the last Tuesday of each month. After the tape has popped out the next morning, the person should send the tape through Chapter mail to Roselle Jones in the Business Information Management Department. For the first month, please also ask the person in your office to alert Roselle by e-mail (rjones@arthritis.org) that they will be sending tapes to her.

Save the second archival tape for the following month.

Roselle will deliver the tapes to the Technology Support Team who will use them in the following ways:

- As an extra back-up to minimize loss of data should something happen to your server;
- As a check on the server data integrity (The Team will check a percentage of all tapes each month to be sure our network is working properly.)

The tape you send on September 29 will remain with the Support Team until they receive the tape you send on October 27. Roselle then will return the first archival tape for your use in making an archival tape of November data. This will establish a cycle for the network to have a monthly archival "snapshot" of our data and will help reduce the risk of data loss should something happen to your local server. Please remember to check off the applicable month.

Please contact me if you have questions about this process.

Charles Shepherd
Group Vice President, Systems Management
Tel: 404-965-7628
E-mail: cshepher@arthritis.org

Cc: Roselle Jones

Arthritis Foundation
Strategic Business Management Team

In 1997, the Arthritis Foundation undertook a major change in the way we do business. With the investment in technology, the Foundation declared itself as a player in the new information-based age. The computer equipment, software, and communication capabilities have brought a level of sophistication and business power to our staff that was not present before.

The Strategic Business Management Team was created to help guide and implement these technological and business changes. This team is a new group to the Foundation; however, the staff assigned to be a part of the team is not. One team member has been with the Foundation for 21 years, two for 12 years and one for 3 years. As with other collaborative efforts, the team is focused on goals that relate directly to our mission. The team is unique because their roles are fluid to a great degree, changing as members focus on the tasks necessary to complete the current priorities.

To understand how the team operates, it would be helpful to know the team's goal.

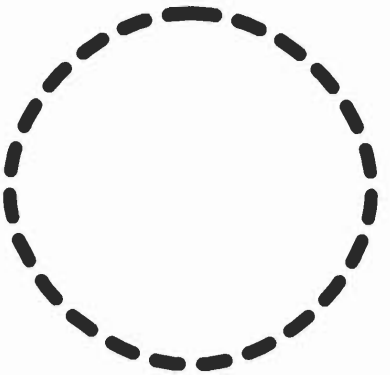
To deliver technology that serves the current and changing business needs of all users enabling them to meet the mission of the Foundation to support research, find the cure and prevention of arthritis and to improve the quality of life for those affected by arthritis.

Having worked together for the past 24 months, the group has devoted extensive time to implementing the technical infrastructure, configuring three new applications for business use, developing training programs for users, and helping to create a different perspective among staff and volunteers. New business practices and ways of thinking are evolving from this process.

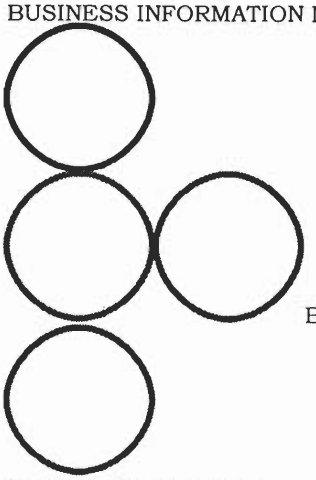
Although there are four distinct areas of involvement, each member is integral to the others' work. In fact, during the past year the members have had to "regroup" several times after each milestone within the overall program and determine the next challenge. The team consistently shifted roles to meet primary objectives and move projects forward.

The four areas within the Team are:
1) Business Information Management
2) Database Management
3) Field Systems Support
4) Systems Management

The model below illustrates the organizational structure of the team.



BUSINESS INFORMATION NETWORK



Business Management

Database Management

Field Systems Support

Systems Management

The team reports directly to Charlie Silva, Senior Vice President, Finance & Operations. Charlie acts as the coach, guiding the team in critical decisions that have an impact on business. Charlie also serves as a sounding board for strategic direction. Lori Millians serves as the Coordinator and Angela Beavers serves as the Administrative Assistant; they offer important support as part of the team.

Bringing the Foundation to its current technological environment has taught the team some unexpected lessons about implementing change. Change fundamentally shifts the Foundation's culture and the way we do business. From becoming a full time vendor in response to user needs on the network to working with outside consultants to implement our business requirements in off-the-shelf applications, the team has had its share of challenges. In addition, by committing to a series of aggressive release schedules, the team has not had the luxury of extensive testing before providing the new resources to users.

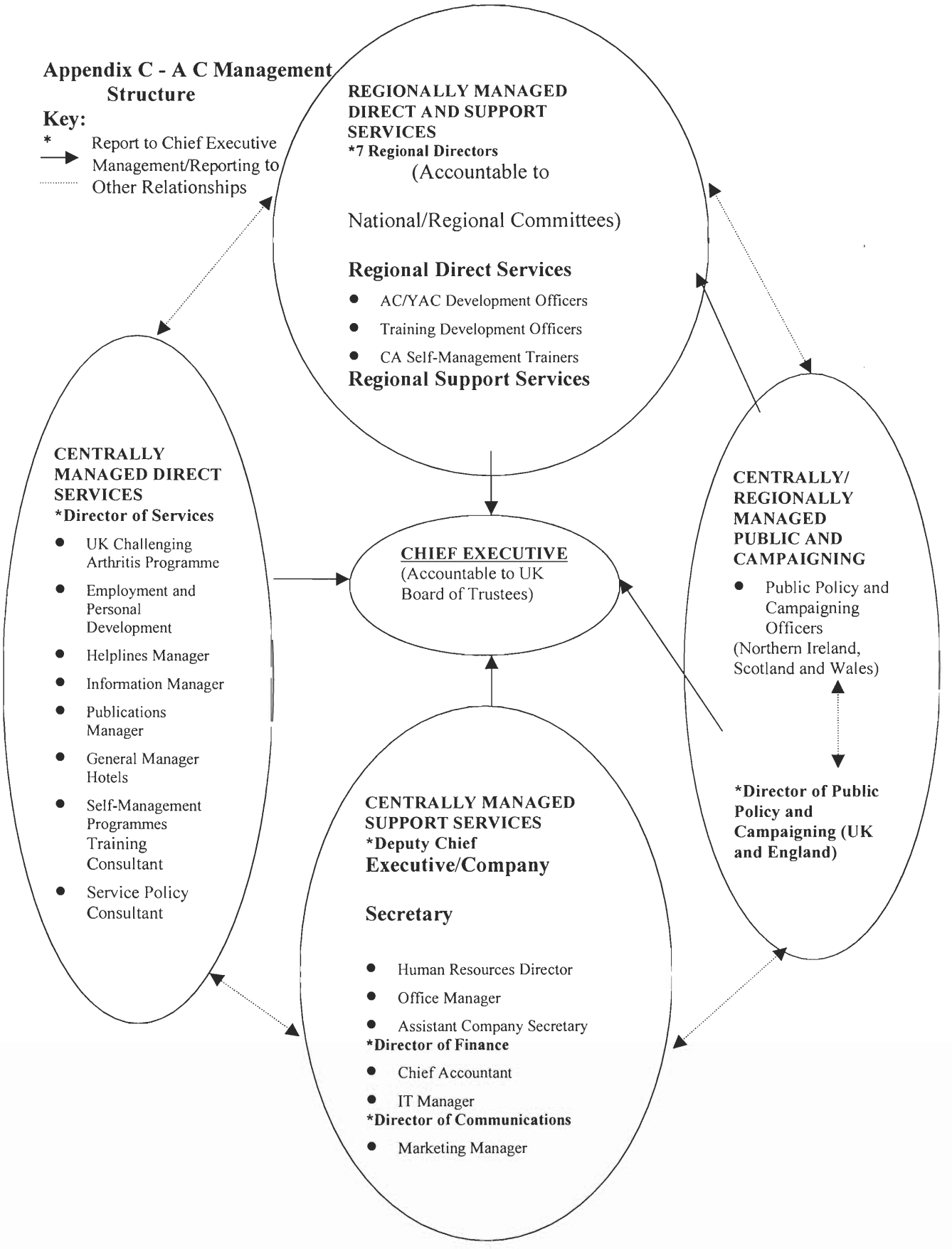
Consequently, the team members have been covering many areas, stepping into each other's shoes as needed, and providing management support as necessary. Our current approach is to maintain this flexibility and focus on areas of immediate need, allowing our roles to mature and become more fine-tuned as the organization moves ahead.

Appendix C - A C Management Structure

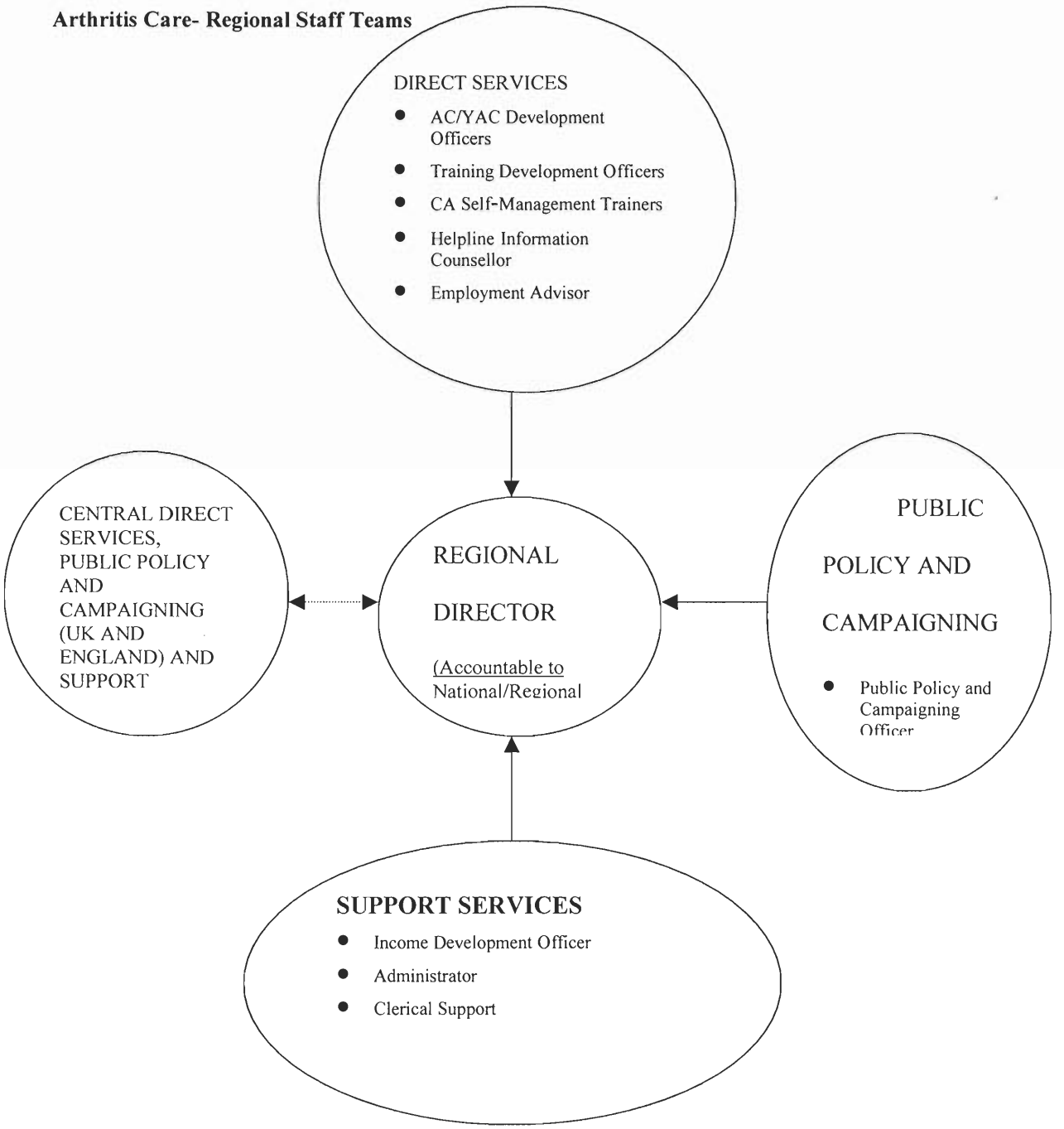
Key:

* Report to Chief Executive Management/Reporting to

Other Relationships



Arthritis Care- Regional Staff Teams



Appendix D – Interview Questions

Preliminary Interview Questions

1.) How are you?

2.) How was your day at work today?

3.) What is your job description?

4.) Describe what you do during a typical day at work.

5.) What are your organisation's goals?

6.) What are your goals within the organisation?

7.) How often do you interact with other people during the day?

8.) What types of staff members do you communicate with?

9.) Who do you interact with the most?

10.) Are you able to communicate easily with whomever you need to talk to?

11.) What methods of communication do you use?

12.) How often do you communicate with other offices?

13.) What is the importance of your communication with other employees or volunteers?

14.) How do you feel about the current communication system?

15.) What types of information do you need access to do your job?

16.) What types of information do you use the most?

17.) Are you able to obtain the information you need to do your job whenever necessary?

18.) Are there any types of information that you would like to have better access to?

19.) What do you think about the possibility of a new computer based information system?

20.) Would you feel comfortable with a new system?

21.) What types of information would you like to see incorporated into a new system?

22.) What features of a new system would you find useful to your job?

23.) If you had better access to certain information sources, would you use them more?

What sources?

23.) Are there any other concerns or opinions that you would like to express?

Employee Interview Questions

1.) Describe what you do during a typical day at work.

2.) How often do you communicate with other staff members during the day?

3.) What types of staff members do you communicate with?

4.) Are you able to communicate easily with those you need to talk to?

5.) What methods of communication do you use?

6.) How often do you communicate with other regions?

7.) How do you feel about the current communication system?

8.) In order to do your job effectively, what types of information do you need access to?

9.) Are you able to obtain the information you need whenever necessary?

10.) Are there any types of information that you would like to have better access to?

11.) What do you think about the possibility of a new computer based information system?

12.) Would you feel comfortable with a new system?

13.) What types of information would you like to see incorporated into a new system?

14.) What features of a new system would you find useful?

15.) Are there any other concerns or opinions that you would like to express?

Volunteer Interview Questions

1.) Describe what you do as a volunteer.

2.) How often do you communicate with employees or other volunteers within Arthritis Care?

3.) What types of employees or volunteers do you communicate with?

4.) Are you able to communicate easily with those you need to talk to?

5.) What methods of communication do you use?

6.) How often do you communicate with other regions?

7.) How do you feel about the current communication system?

8.) What types of information do you need access to when volunteering?

9.) Are you able to obtain the information you need whenever necessary?

10.) Are there any types of information that you would like to have better access to?

11.) What do you think about the possibility of a new computer based information system?

12.) Would you feel comfortable with a new system?

13.) What types of information would you like to see incorporated into a new system?

14.) What features of a new system would you find useful?

15.) Are there any other concerns or opinions that you would like to express?

Appendix E - Focus Group Questions

Preliminary Focus Group Questions

Arthritis Care

1.) What goals do you have for the organisation?

2.) What goals do you have for yourself as a member of the organisations?

3.) What is your job description?

Communication

4.) How often do you interact with other people during the day?

5.) What types of staff members do you communicate with?

6.) Who do you interact with the most?

7.) How often do you communicate with other offices?

8.) If you had better access to certain information sources, would you use them more?

What sources?

Computers

9.) How often do you use a computer?

10.) Do you have access to a computer on a regular basis?

11.) Do you have access to the Internet on a regular basis?

12.) What types of computer programs are you proficient with?

13.) Are you skilled in the use of the Internet?

14.) Do you use electronic mail on a regular basis?

15.) Would you need computer training if a new computer information system were implemented?

Final Focus Group Questions

Thank you for participating in our focus group today. We are here to try to access the information needs of Arthritis Care and prioritise them. We are trying to get a wide variety of opinions, so everyone's input is extremely valuable to us. At this time we would like you to sign this form to ensure confidentiality among participants in the focus group. We would like everyone to be open and honest in response to the questions.

1.) Are you able to communicate easily with those you need to talk to?

2.) What methods of communication are used within Arthritis Care?

What are the most frequent methods?

What are the best methods?

3.) How do you feel about the current communication system?

4.) What types of information do you need access to?

5.) Are you able to obtain the information you need?

What types of information are the most important?

6.) Are there any types of information that you would like to have better access to?

7.) How do you feel about the possibility of a new computer based information system?

8.) Would you feel comfortable with a new system?

9.) Would you support a training program to allow staff members to make effective use of a computer information system?

10.) What types of information would you like to see incorporated into a new system?

What features of a new system would be useful?

11.) Are there any other concerns or opinions that you would like to express about the exchange of information and communication within Arthritis Care?

Appendix F - Focus Group Survey

We are three students from Worcester Polytechnic Institute, a university in Massachusetts. We are working with Arthritis Care to complete a project in order to fulfil a graduation requirement. Our project involves assessing the information needs of Arthritis Care. **This is a unique opportunity to voice your opinions about the current communication system. Your opinions will then become an integral part of the development process for improvement strategies.** Your opinions are completely confidential.

1.) What methods of communication do you use (circle)?

Phone Fax Memos Email Other_____

2.) Are you able to contact easily staff members within the organisation?

3.) Are you able to access easily the information you need to do your job?

4.) List the information sources you use most frequently.

5.) Are there any information sources that you would like to have better access to?

6.) On a scale from 1 to 10 (10 being best), rate the current information exchange system within Arthritis Care.

1 2 3 4 5 6 7 8 9 10

7.) Do you have access to a computer on a regular basis? Y N

email? Y N Internet? Y N

8.) If you have any comments about the current information exchange system or suggestions for improving the system please use the space below.

Appendix G - Development Officer Survey

We are three students from Worcester Polytechnic Institute, a university in Massachusetts. We are working with Arthritis Care to complete a project in order to fulfil a graduation requirement. Our project involves assessing the information needs of Arthritis Care. **This is a unique opportunity to voice your opinions about the current communication system. Your opinions will then become an integral part of the development process for improvement strategies.** Your opinions are completely confidential. If you would like to contact us for any reason we can be reached by email at wpi@arthritiscare.org.uk or messages can be left with the information department at 020 7916 1500 ext. 260 or 261.

1.) What is your job title (circle)?

ACDO IDO TDO YACDO Other_____

2.) What methods of communication do you use (circle)?

Phone Fax Memos Email Other_____

3.) Are you able to contact easily staff members within the organisation?

4.) Are you able to access easily the information you need to do your job?

5.) List the information sources you use most frequently.

6.) Are there any information sources that you would like to have better access to?

7.) On a scale from 1 to 10 (10 being best), rate the current information exchange system within Arthritis Care.

1 2 3 4 5 6 7 8 9 10

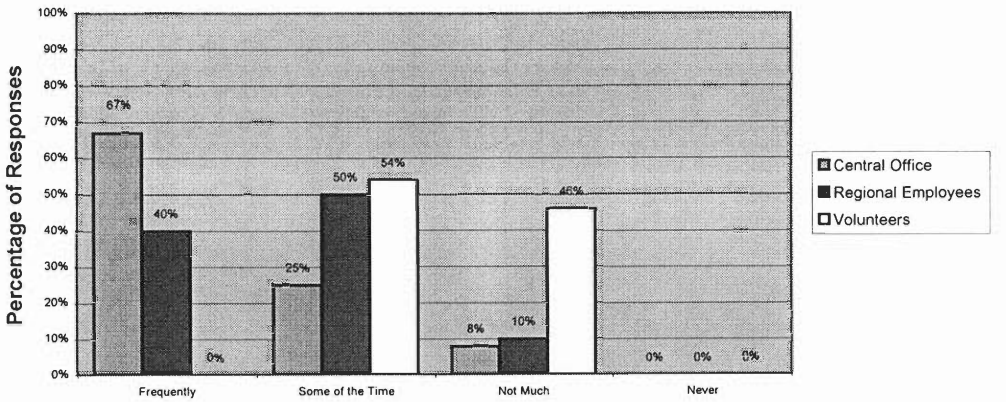
8.) Do you have access to a computer on a regular basis? Y N

email? Y N Internet? Y N

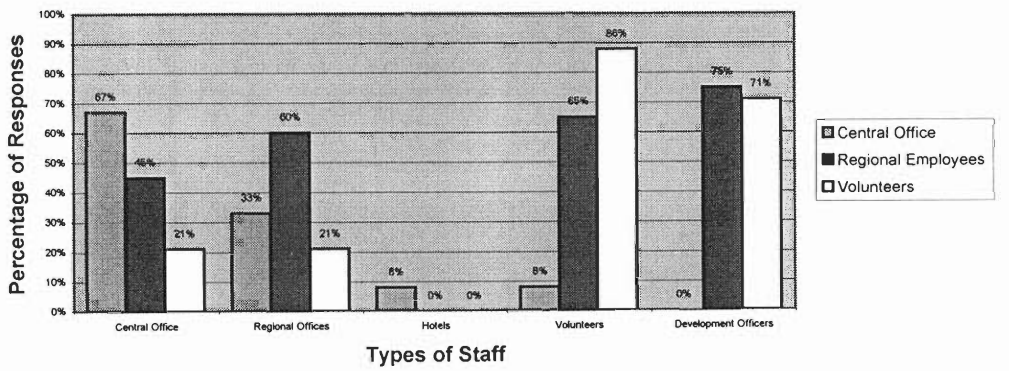
9.) If you have any comments about the current information exchange system or suggestions for improving the system please use the space below.

Appendix H – Interview Charts

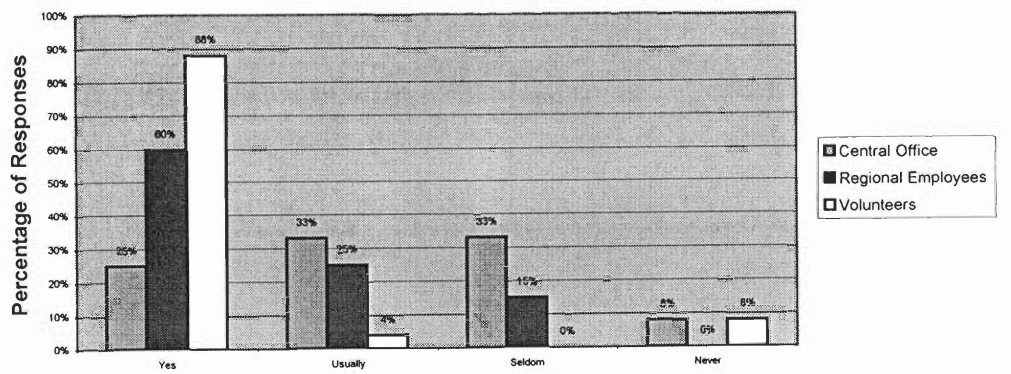
How often do you communicate with staff members?



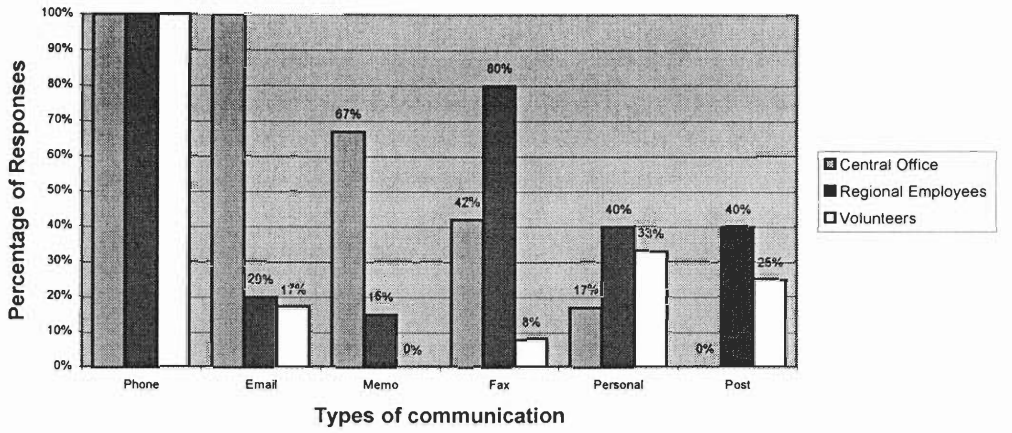
What staff members do you communicate with?



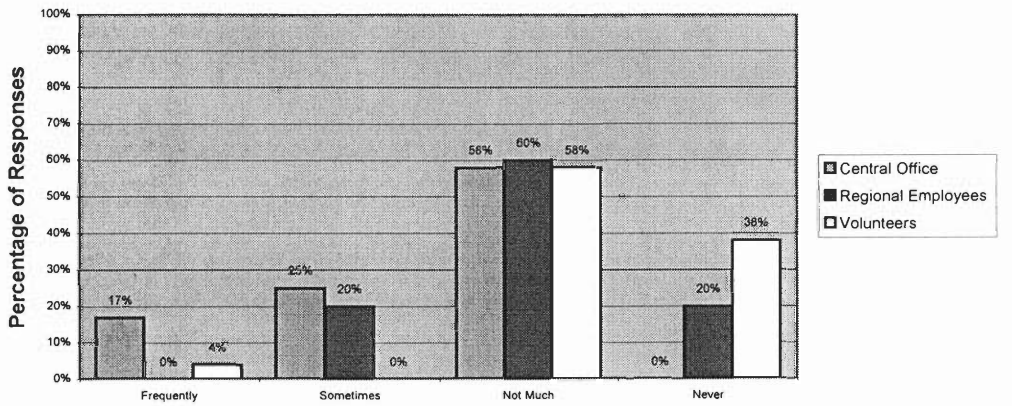
Are you able to communicate easily with those you need to talk to?



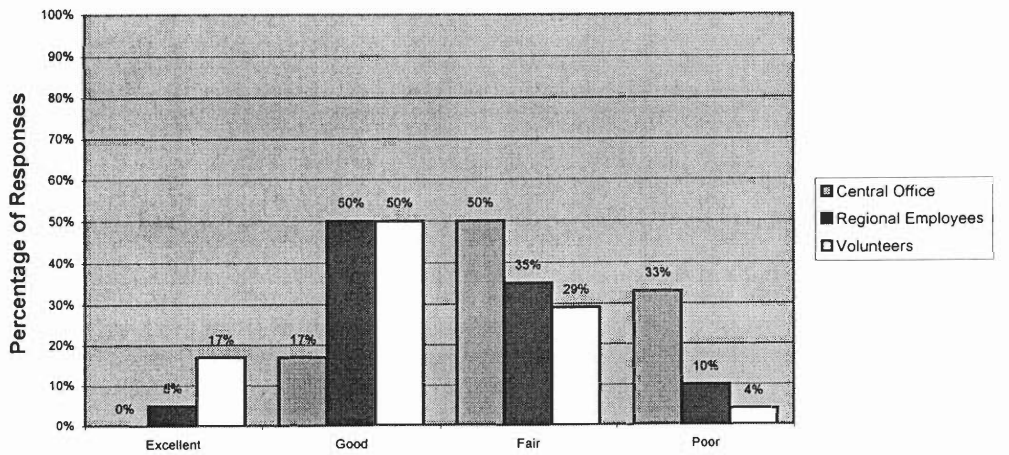
What types of communication do you use?



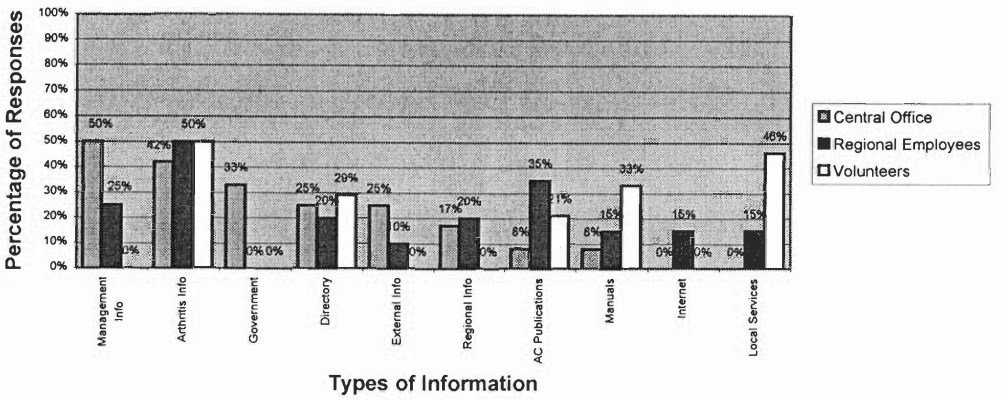
How often do you communicate with other regions?



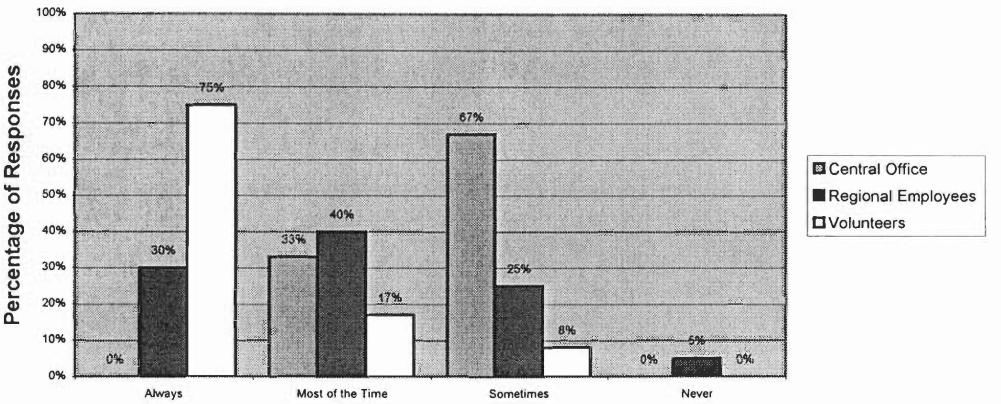
How do you feel about the current communication system?



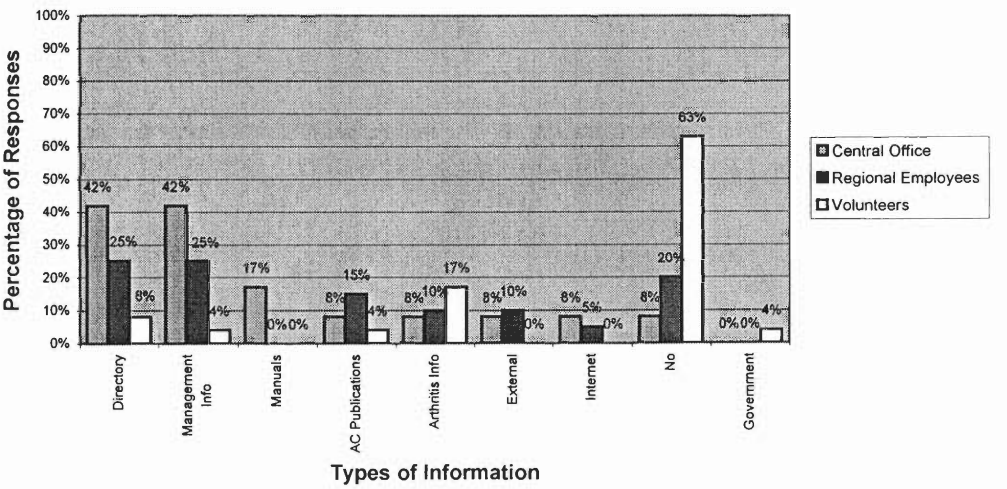
What types of infomation do you need access to?



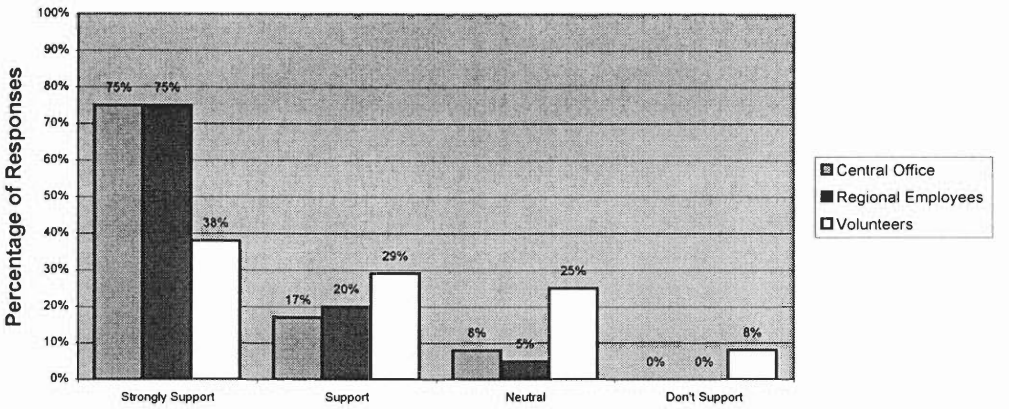
Are you able to obtain the information you need whenever necessary?



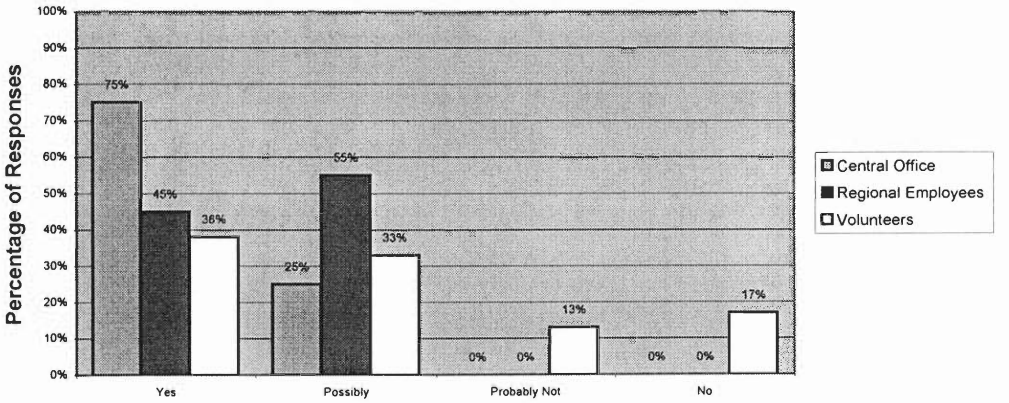
Are there any types of information that you would like to have better access to?



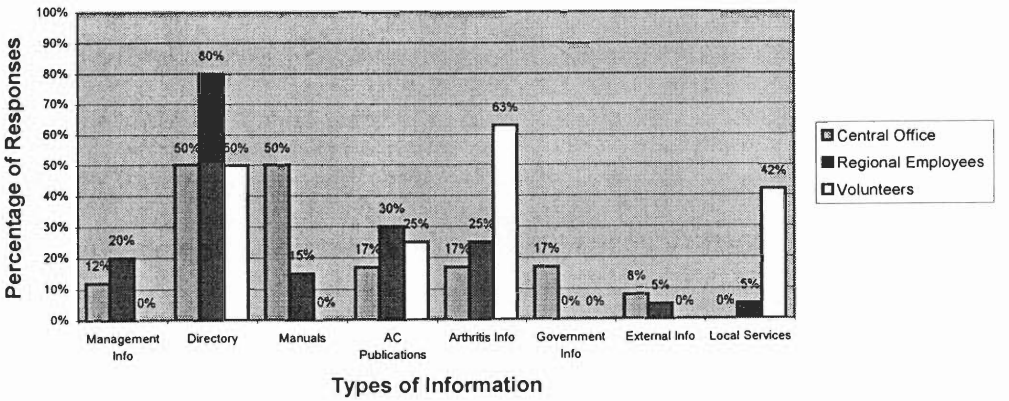
What do you think about the possibility of a new computer based information system?

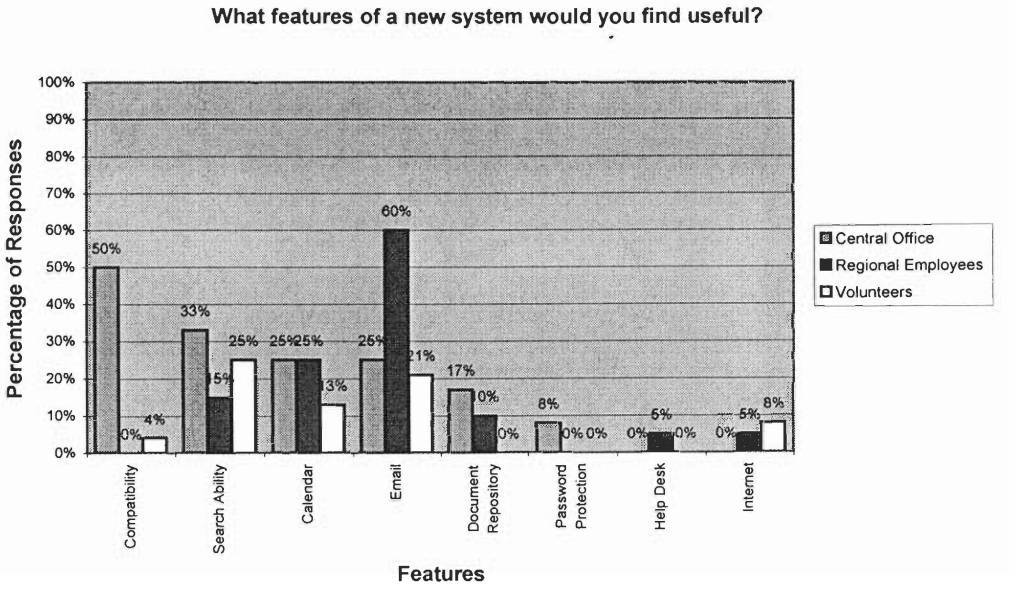


Would you feel comfortable with a new system?

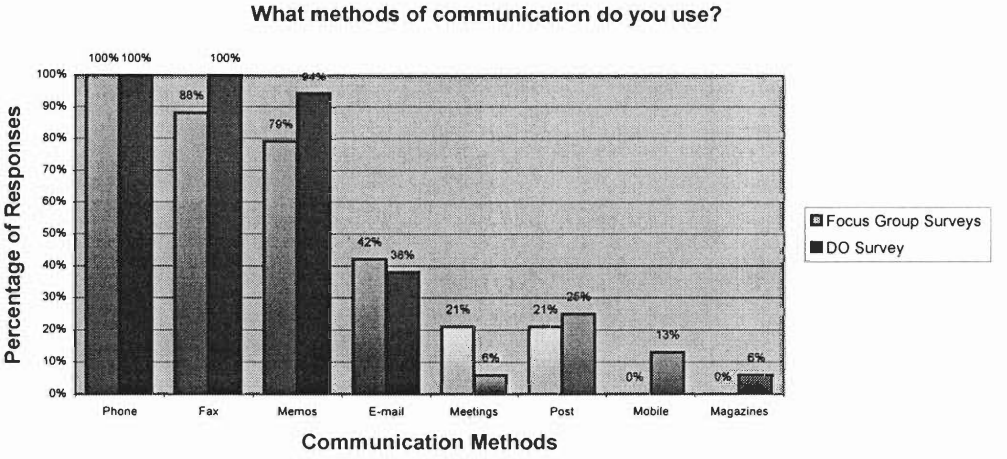


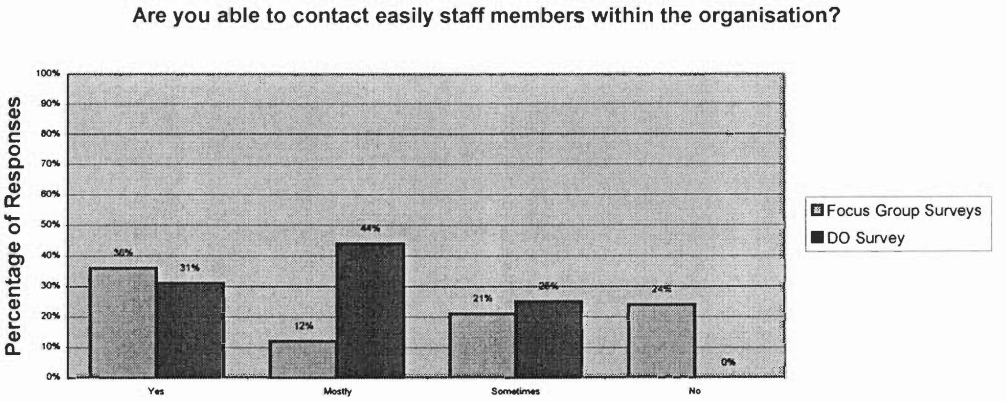
What ypes of information would you like to see incorporated into a new system?

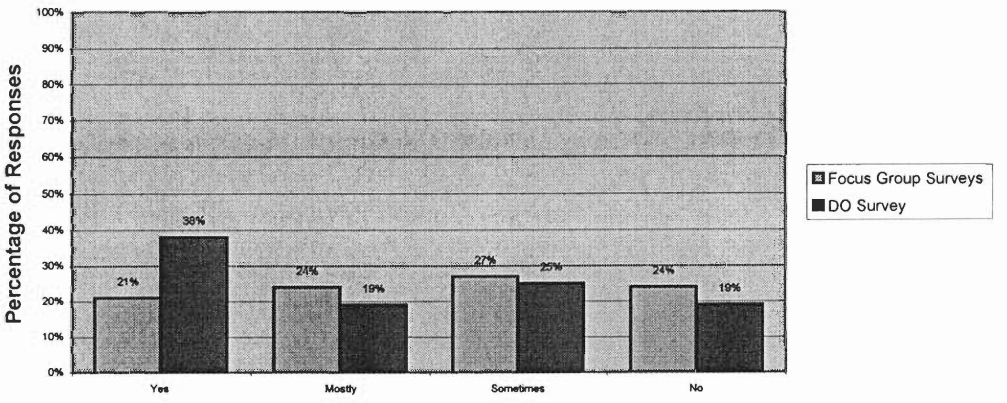



What features of a new system would you find useful?
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
50%
0%
4%
33%
15%
25%
25%
25%
13%
25%
60%
21%
17%
10%
0%
8%
0%
0%
0%
5%
0%
0%
5%
8%
Compatibility
Search Ability
Calendar
Email
Document Repository
Password Protection
Help Desk
Internet
Features
Central Office
Regional Employees
Volunteers

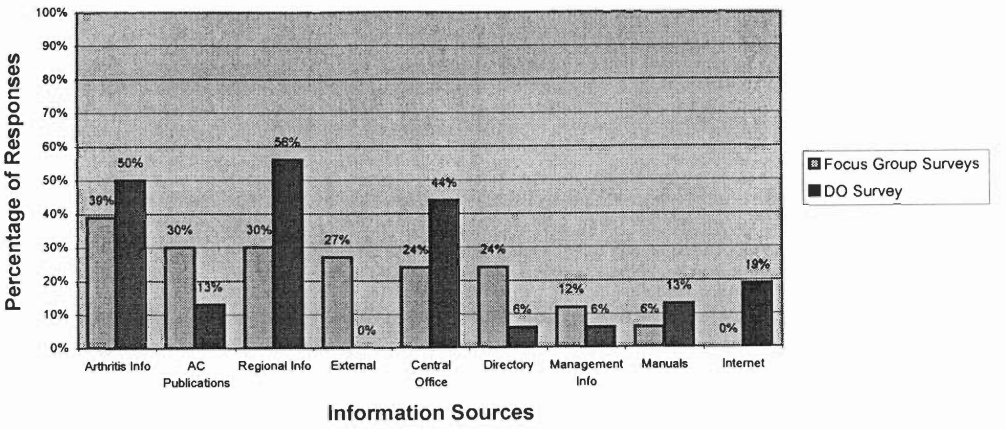
Appendix I – Survey Charts



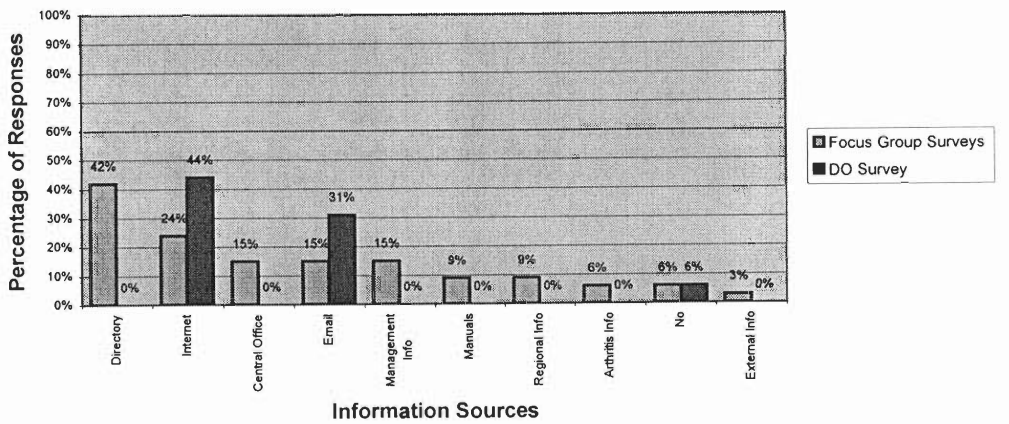




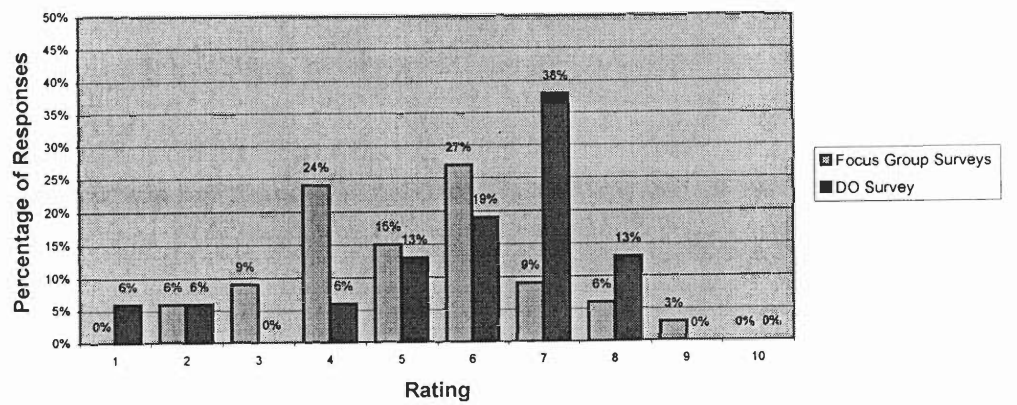
List the information sources you use most frequently.

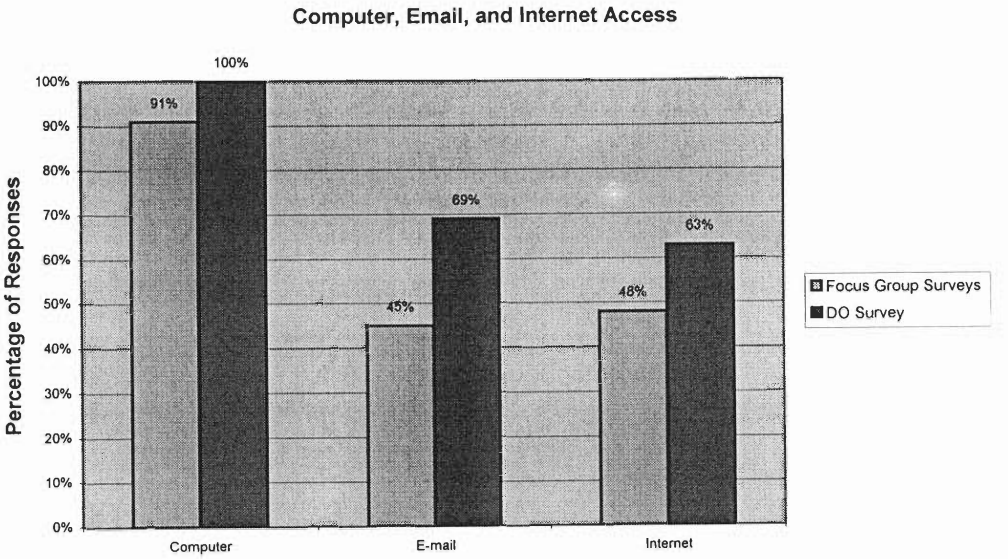


Are there any information sources you would like to have better access to?



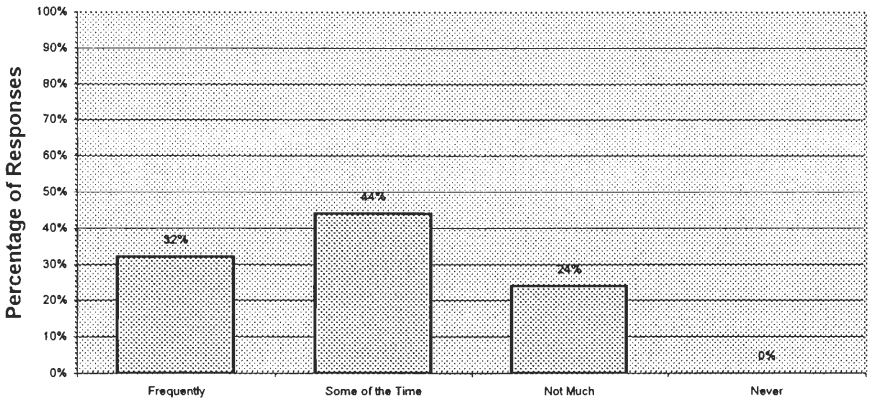
On a scale from 1 to 10 (10 being best), rate the current information exchange system within Arthritis Care.



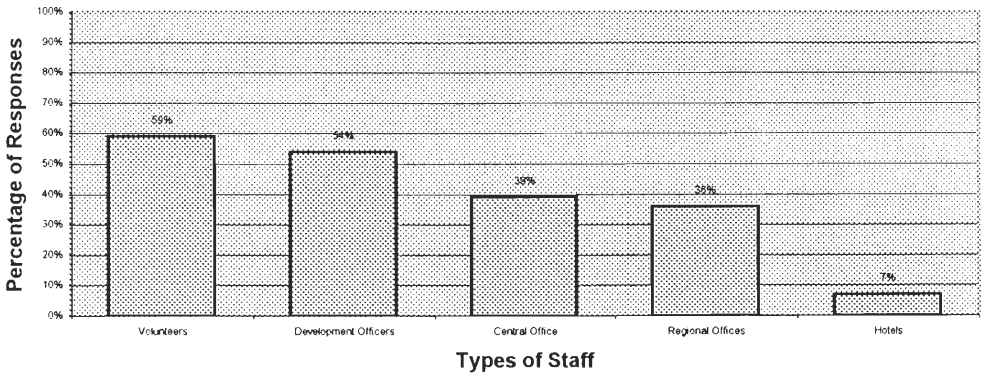

Computer, Email, and Internet Access
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
91%
100%
45%
69%
48%
63%
Computer
E-mail
Internet
Focus Group Surveys
DO Survey

Appendix J – Aggregate Interview Charts

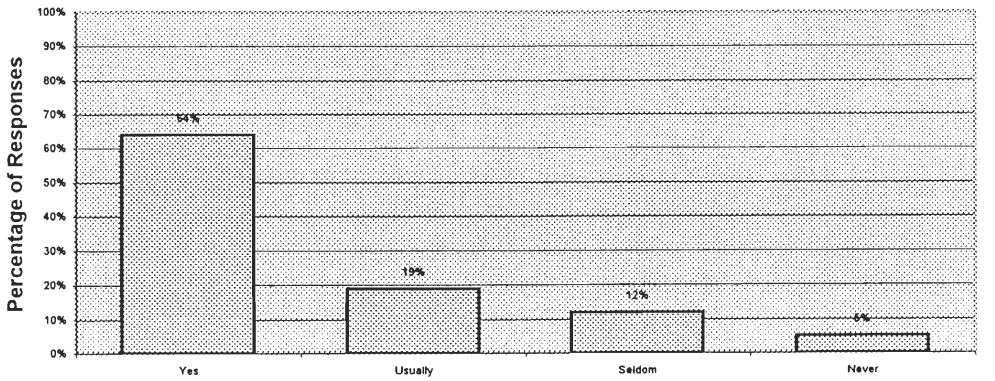
How often do you communicate with other staff members?

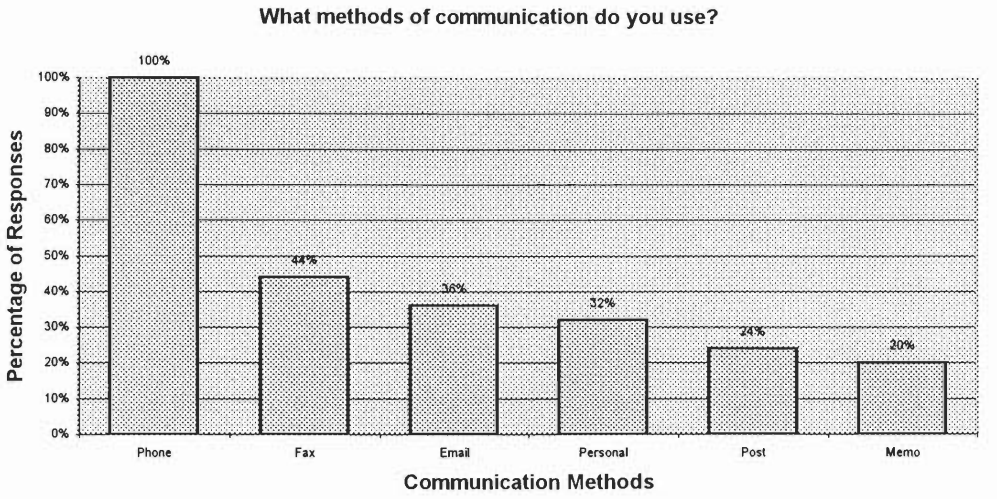


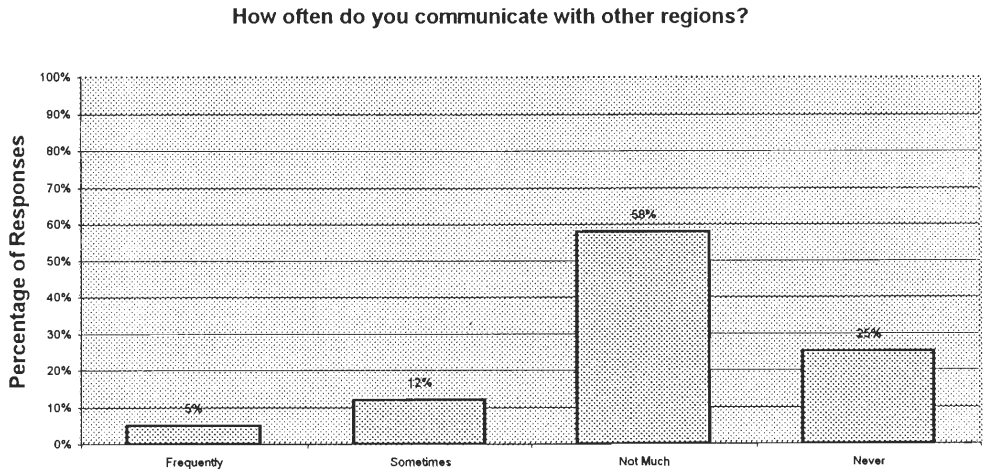
What types of staff members do you communicate with?

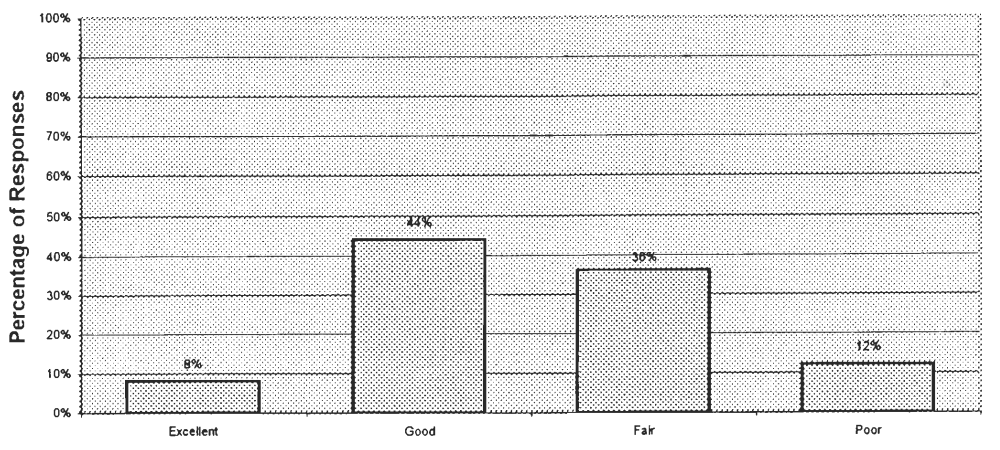


Are you able to communicate easily with those you need to talk to?

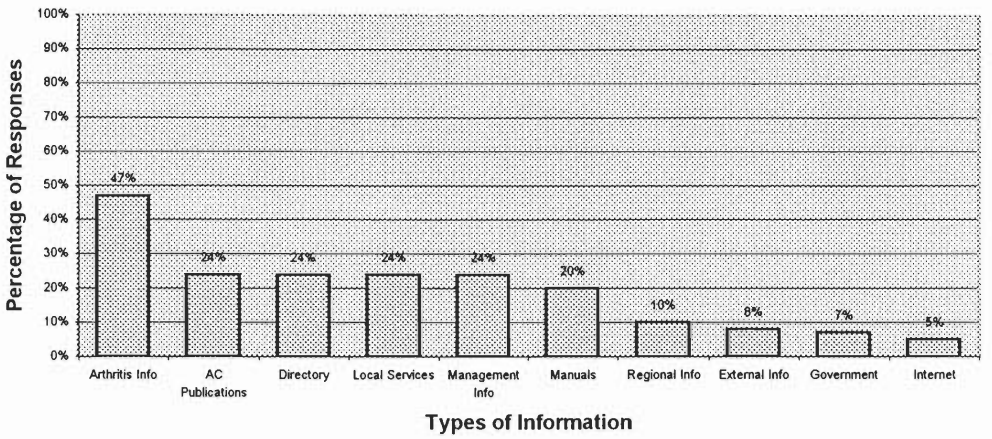



What methods of communication do you use?
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
100%
44%
36%
32%
24%
20%
Phone
Fax
Email
Personal
Post
Memo
Communication Methods

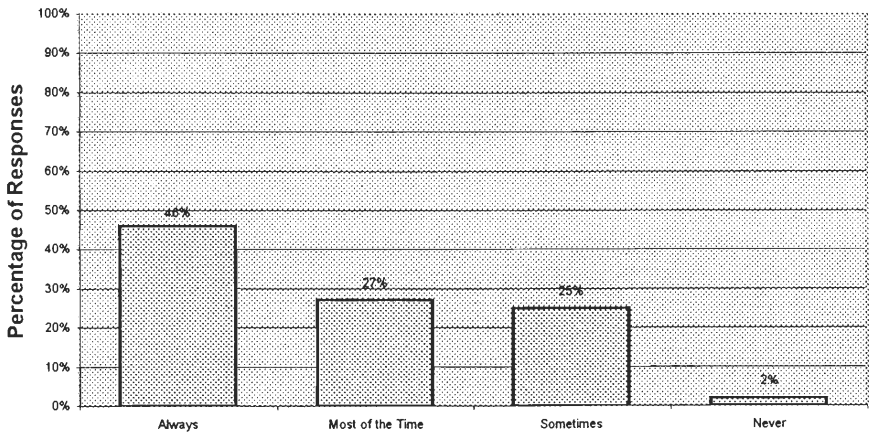

How often do you communicate with other regions?
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
5%
12%
58%
25%
Frequently
Sometimes
Not Much
Never


How do you feel about the current communication system?
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
8%
44%
36%
12%
Excellent
Good
Fair
Poor

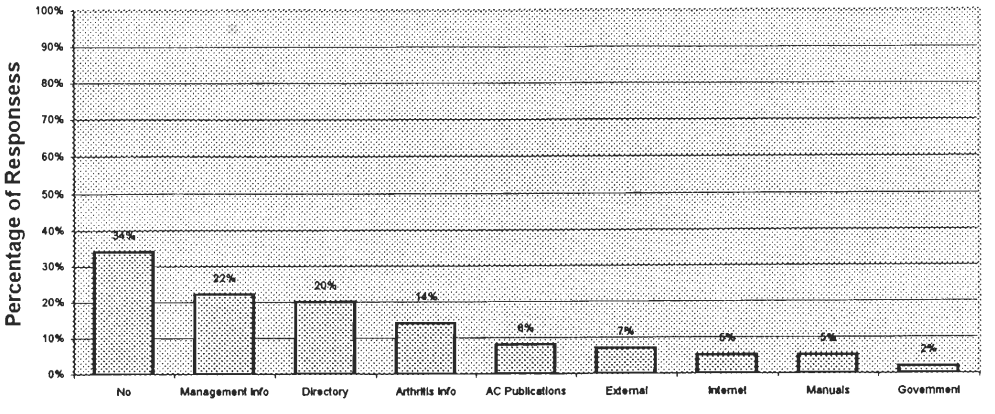
What types of information do you need access to?



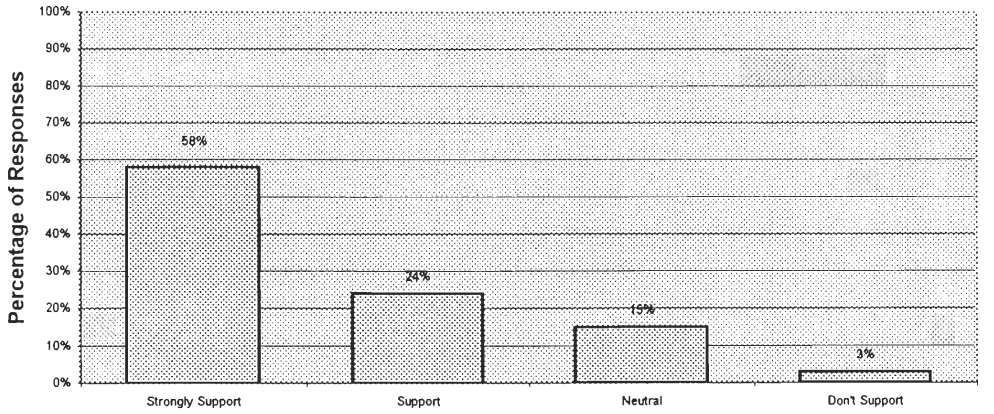
Are you able to obtain the information you need whenever necessary?



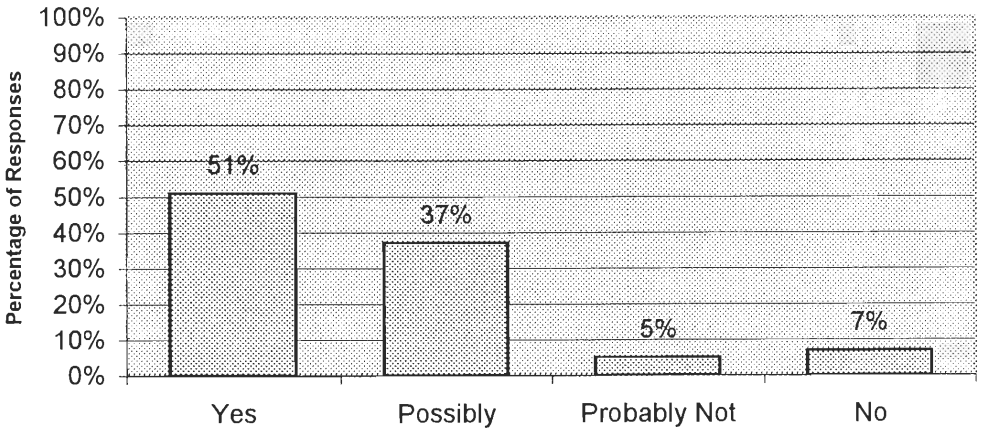
Are there any types of information you would like to have better access to?



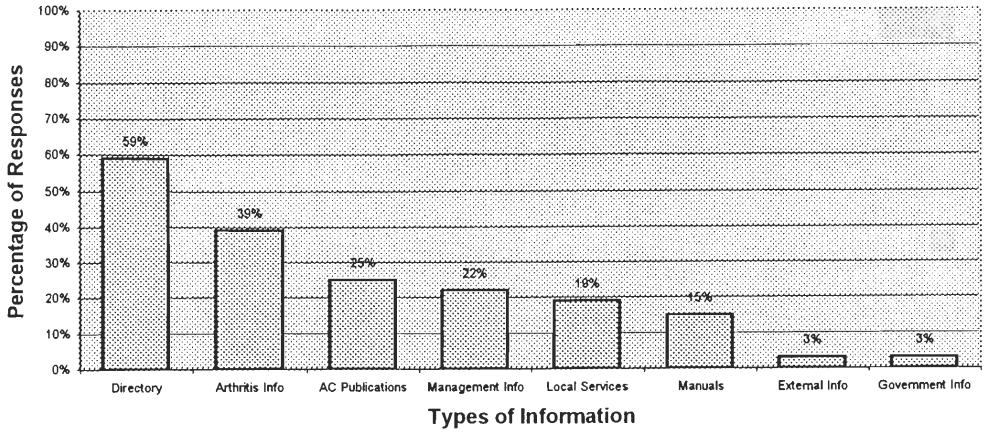
What do you think about the possibility of a new computer based information system?

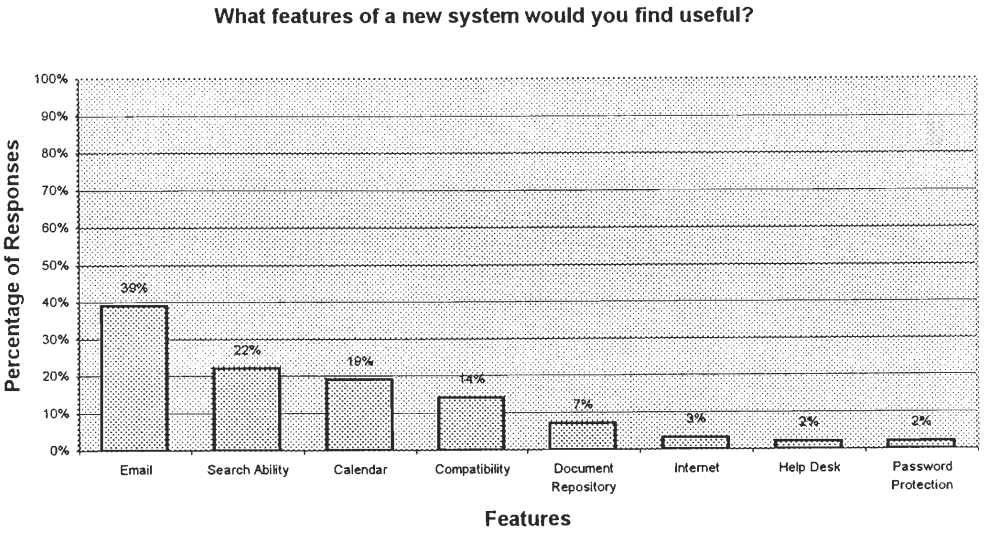


Would you feel comfotable with a new system?



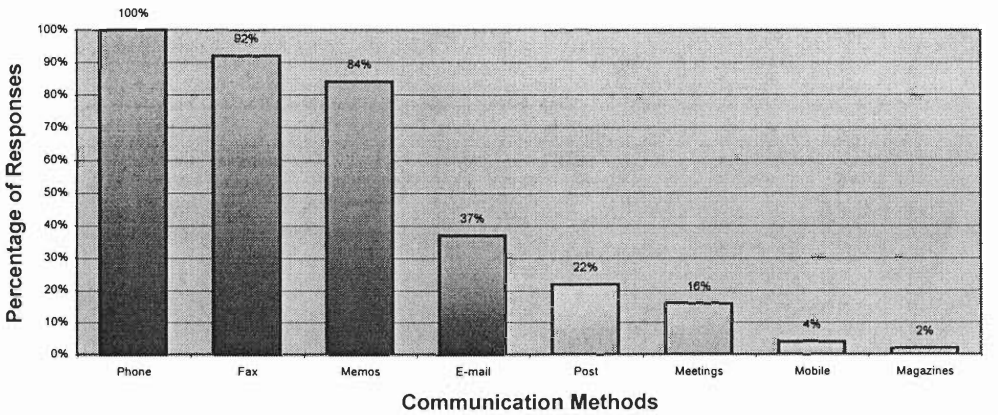
What types of information would you like to see incorporated into a new system?



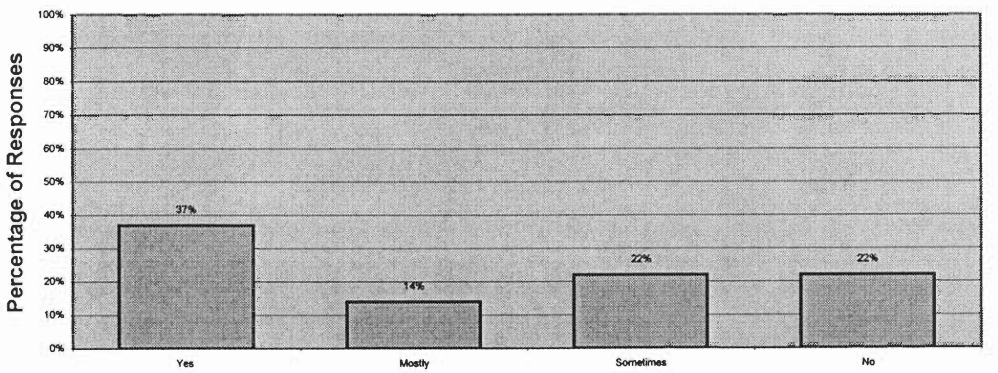

What features of a new system would you find useful?
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
39%
22%
19%
14%
7%
3%
2%
2%
Email
Search Ability
Calendar
Compatibility
Document Repository
Internet
Help Desk
Password Protection
Features

Appendix K – Aggregate Survey Charts

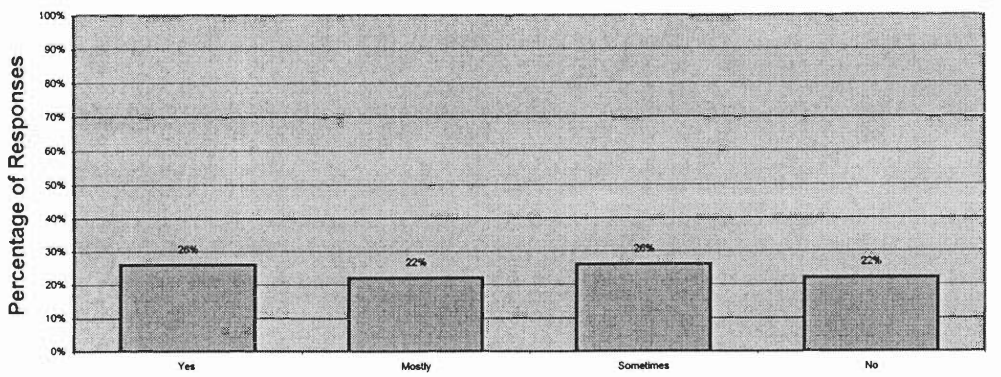
What methods of communication do you use?



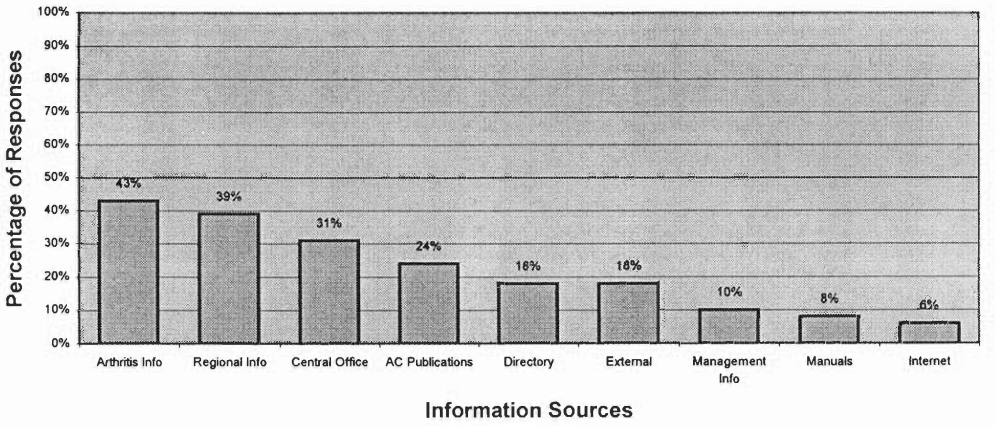
Are you able to contact easily staff members within the organisation?



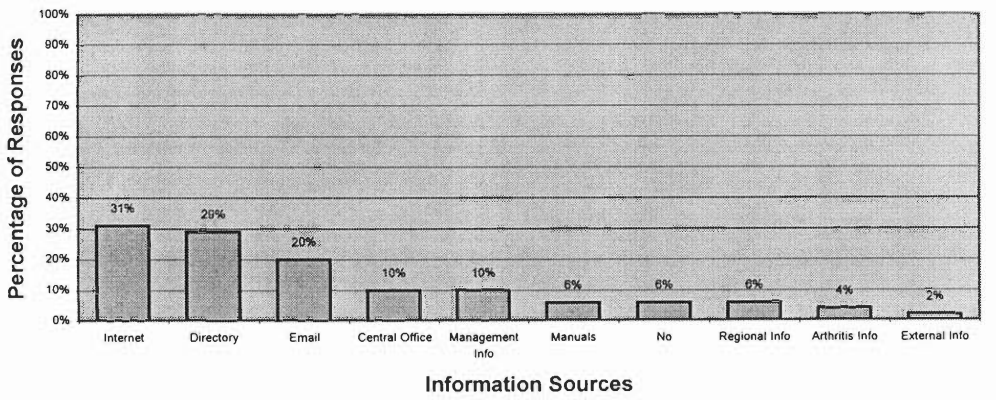
Are you able to access easily the information you need to do your job?



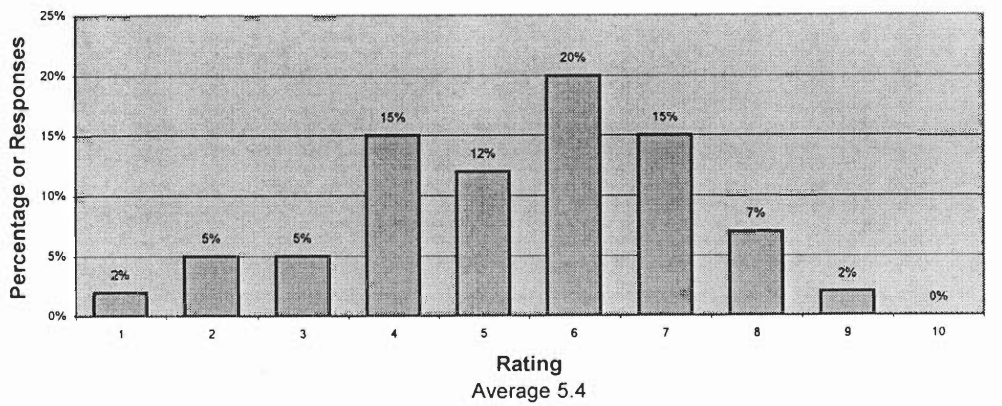
List the information sources you use most frequently.



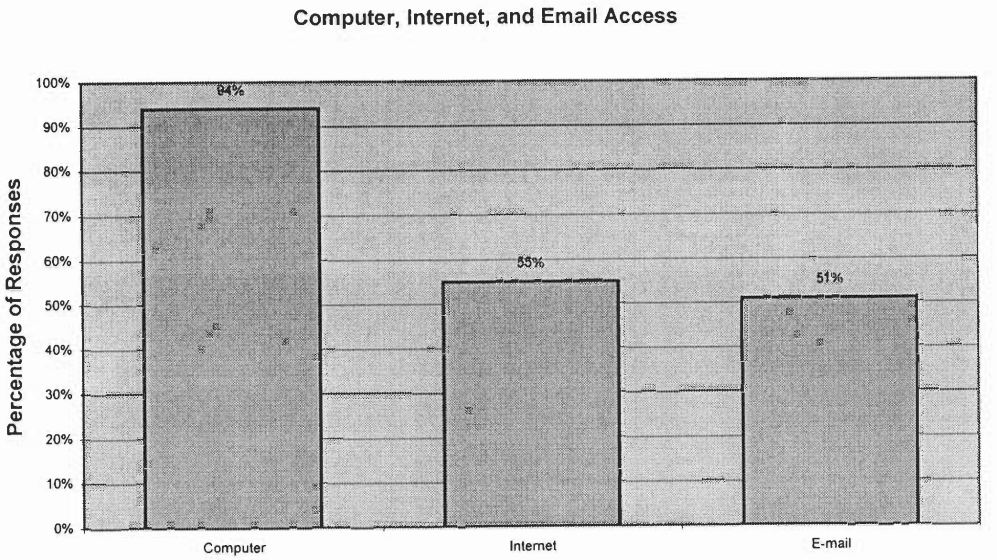
Are there any information sources that you would like to have better access to?



On a scale from 1 to 10 (10 being best), rate the current information exchange system within Arthritis Care.



Average 5.4


Computer, Internet, and Email Access
Percentage of Responses
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
94%
55%
51%
Computer
Internet
E-mail