

# A Case Study of One Computer and the Internet in a Long-Term Facility

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While acute care systems such as HBCIS, the Hospital-Based Corporate Information System, have progressed from idea to reality in Queensland over the last seven years community services, most particularly long-term care facilities, have yet to experience the impact of information systems or even more than casual computer use. The Faculties of Health Science and Business and an aged care facility in Central Queensland (CFCQ) jointly developed a pilot project to explore the computer-based information needs and usefulness of computers for staff in a long-term care setting. This paper explores the results of the project, successful but necessarily of a short duration, and suggests priorities for the future, including the potential for resident participation in accessing appropriate information resources.

## 1. Introduction

Queensland Health has initiated a number of information system projects over recent years, the largest and most significant being HBCIS, the Hospital-Based Corporate Information System. While HBCIS is oriented towards corporate information, it at least had the benefit of user input in the design and selection process, and implementation has been enthusiastic albeit with mixed results. From the institutional user's perspective HBCIS seemingly suffers from many of the same complaints as any large centrally-initiated information system in a dispersed service delivery organisation, particularly as aspects of Queensland Health's information needs were apparently not made explicit prior to the selection of the system and have changed significantly during the 8-year implementation phase.

From the perspective of the authors HBCIS and similar systems have another, more critical fault. The needs of community service agencies, particularly long-term care facilities, have not been considered. It has been five or more years since nursing sisters in hospitals were enthusiastically reporting the introduction of Lotus 123 spreadsheets for managing rosters, et cetera, and today most such institutions are either connected into the state network or have extensive stand-alone computer facilities. Unfortunately, long-term care facilities such as the Central Queensland 120 bed aged care facility described in this report (CFCQ), have yet to see much use of computer-based information technology.

As the principal researcher for this project noted in a videotaped report on the project:

"Health informatics, or the use of information technology in health care systems, is often confined to the high tech part of the system--the intensive care units or perhaps the business management side.

"Long-term health care settings--nursing homes, domiciliary care--are often left out of that because the people who make the decisions about information technology think that nothing goes on in long-term care settings that's worthwhile introducing information technology to..." [1]

In 1994 the Faculties of Health Science and Business and the CFCQ jointly developed a pilot project to explore the computer-based information needs and usefulness of computers for staff in a long-term care setting. The University supplied CFCQ with two (outdated) computers (originally planned as one), a printers, and a modem, plus the interest and enthusiasm of two part-time research assistants (one of the authors was the Health Science research assistant). Several of the CFCQ staff became quite enthusiastic about the use of the computers and, as time and a hostile computer environment permitted, used the computer for everything from preparing schedules to accessing the alzheimer's newsgroup on the Internet.

Inevitably, pilot projects come to an end. While the original computers have been replaced by the long term loan of less hostile models with a faster modem and the staff remain enthusiastic about the potential of computers, their priorities have not broadened beyond a need 'for one computer for each ward' to make scheduling and other administrative chores easier.

This paper explores the results of the project and suggests priorities for the future, including the potential for resident participation in accessing appropriate information resources.

## 2. Background

The CFCQ is a publicly funded long-term care facility established in 1983 with the final stage completed in 1986. The facility provides three types of accommodation and care includes extensive, low dependency, and dementia. The Centre comprises three wings, each staffed by a Clinical Nurse Consultant, Registered and Enrolled Nurses as well as assistants and orderlies. Speech, occupational and physiotherapy, and podiatry are among the other services provided. While the CFCQ is a part of the local health authority, it is operated independently from other regional facilities. The staff recognise that residents are "here to live life", not to die, and their objective is to enhance the quality of life for all residents.

The Faculty of Health Science at Central Queensland University was established with pre-service and post-RN degree programs in the early 1990s. More recently a post-graduate Health Administration and Information Systems degree was established with the Faculty of Business, followed by undergraduate and graduate qualifications in a broad range of disciplines including Primary Health Care, Occupational Health and Safety, Health Promotion, Health Education, and Human Movement Science.

The Faculty has always worked closely with local health providers, public and private. CFCQ is located close to the University, thus providing easy access for a University-provided research assistant to become accepted by CFCQ staff and implement the proposed pilot project by facilitating staff use of computers at times which were convenient to the staff.

As was noted in the project's interim report [2], computer networks in a health care setting offer users access to a vast array of services including information of a practical and philosophical nature, continuing education, peer support, decision support, and communication tools such as electronic mail, newsgroups and bulletin boards. Unfortunately, the development of computer-based health information systems has predominantly been for financial and administrative functions and nursing systems have been in either in acute care settings, clinics, or nursing administration. The potential for information technology in long-term care facilities has been largely ignored, even though there is a growing demand for the facilities due to the aging population.

Nursing staff and nurse administrators working in long-term care settings require a broad knowledge base, a knowledge base which should be deliverable in a cost effective manner to regional centres using current Internet and related networking facilities. These networks make available a vast array of computer-accessed information, bulletin boards, newsgroups, and medical databases, which, though often not directly aimed at the long-term care facility needs, can provide cost and time efficient access to useful information and services. The potential of a library without walls [3] and an instant support network in the nursing station or resident lounge of a long-term care setting appears limitless.

## 3. The Pilot Project

The aims of the pilot study were to investigate and describe the computer-based information needs and usefulness for nursing staff in a long-term care setting. The study was designed around desktop PCs and communication facilities for use in the nursing stations of CFCQ.

The CFCQ Director of Nursing supported the project, provided expert nursing input, and entrée to resident care areas for project personnel. The institution had recently acquired its first personal computer for administrative purposes but even a resident database and related information had not been developed. While the researchers originally considered using this system for the project, including developing such a resident database, the exigencies of funding imposed limitations on both computer equipment and support staff provided. The project PCs, while no longer of current use to the Faculty of Business, were still deemed to be acceptable for low-speed modem access to the Internet via a University dial-up connection.

The project was a multi-disciplinary activity of the Faculty of Health Science and the Faculty of Business, each providing the services of a part-time researcher with expertise in their respective disciplines (but unfortunately almost no expertise in the other's discipline). The Business researcher rejuvenated two DOS-type computers with colour monitors and supplied free-use communications software from the network. The Health Science researcher embarked upon a literature search and began building a network of personal contacts among CFCQ nursing staff.

The research methodology employed was a combination of participant observation and action research, combined with a number of informal interviews and focus group sessions. The main aim of the participant observation was to collect information about the participants in the study, their daily customs and thoughts, so as to become absorbed into their daily lives with as little disturbance as possible. A non-threatening relationship between researcher and subject assists in breaking down the computer phobia and has the potential for encouraging more staff to become involved.

Participant observation was particularly appropriate in this context because it allowed the researcher to assist in the introduction of the computer technology, helping the staff to overcome their computer phobia by demonstrating the computer use and learning along with the staff. The action research component was obviously related to the openly stated objective of modifying the staff's use of information resources through the use of computer-based information sources.

The first meeting of the project was with the Director of Nursing who had considered a number of uses for computers in a long-term care setting: resident database, policy manual, wound and drug care information, product information, education, rosters, standard care plans, Internet connection to the Faculty of Health Science (to utilise University resources), printer for posters/notices and reports, and collecting queries and suggestions.

Subsequently the resident nurse educator introduced the researchers to the clinical coordinators at a morning tea and the project was truly under way. All but one of the nurses seemed enthusiastic about the project but computer skills varied.

Gradually the nursing staff began to make further suggestions for the use of the computers. "Was it possible to access the University Library from the computer?" "Could we perhaps talk to other nurses about problems we encounter?" "Perhaps the computer could be used for preparing monthly patient plans, currently prepared at one of the nurse's home on a son's computer?" The possibilities appeared limitless, but time was a major and limiting consideration. "When are we going to find the time to sit down with a computer?"

Unfortunately, a number of technical problems had developed with the computers (a moth in a connector, a three week wait for a vital video lead, a malfunctioning keyboard) and it was a long time before the antiquated computers themselves were installed. As well, there was the lengthy and intricate process of preparing an easy-to-follow user manual. Fortunately, the computer support personnel were able to assist with this and in obtaining information about such Internet resources as NurseNet, GeriNet, and the Alzheimer's group. The research assistant soon found herself involved in a "sneaker net" provision of paper copies of messages to and from these groups as well as in extensive academic and information-seeking conversations with the nursing staff. As a number of the nursing staff were involved in courses they looked forward to this new resource to assist them in their studies.

Continued meetings at the CFCQ eliminated locating the computers at the nursing stations as a modem connection there would render the single phone inoperative. The next most suitable site was the office of the clinical nurse coordinators, often empty as they seldom found time to sit at their desks. This also re-raised the question of how much time would be available for using the computers. Staff cuts had produced the situation where

"We educate ourselves, learn about all the wonderful things we can do to improve our 'oldies' quality of life such as validation therapy and aromatherapy but then we don't have time to practise any of it because we are so busy just fulfilling their basic requirements." (Charge nurse)

After some six weeks of delays the computers were ready and installed in the CFCQ, nursing staff were introduced to their use and the log book to record all use. Frustrations with the equipment supplied eventually led to replacements with more up-to-date equipment and ultimately, a permanent loan of equipment from the Faculty of Health Science.

#### **4. Results, Implications and the Future**

The lack of computer experience of the researcher (one of the authors) was a positive note; "It was important because we all learnt together" Choosing the right moment for an intervention and working closely with the staff was a critical part of her role and instrumental in the successes of the project.

"I spend a lot of time choosing the right moment. I wouldn't call it manipulating, rather tactics and tact. These nurses are so busy and practically oriented that it is really important to continue to respect that and not to imply in any way that education, computers or the project take precedence. I need to constantly remind myself to be patient." (Diary notes, J Ulyatt, 14/12/94)

As implied above, time and equipment constraints dogged the project from the beginning. The time constraint was perceptual as much as reality, but the result was the same, the comments of the nurses, their supervisors, and their medical practitioner colleagues reinforced the perceived problem:

"...excuse me for interrupting but I have work to do." (Ward nurse)

"Excuse me sister, but I have to get the work done." (Ward nurse)

"The others will think that I'm not working if I am using the computer in work time; so come and show me after work." (Charge nurse)

"...nurses frittering away their time on computers now..." (General practitioner)

"I haven't had time to get to the computer but it's on my list for next week." (Charge nurse)

Some of the comments were more understandable, as when one nurse was confronted with faulty and unfriendly equipment:

"I knew these things are more trouble than they are worth." (Ward nurse)

The Internet connection was also problematic. This was a problem for the University's students at the time as well, but was alleviated after almost 12 months of frustration when the Department of Mathematics and Computing initiated CQ-PAN, a student-staffed community access project.

"However, we were occasionally successful in putting questions in and that was when we felt that we had won lotto." (Clinical nurse consultant)

As the clinical nurse consultants noted in an interview, the staff were looking for "clinical care initiatives which we could implement in the ward", and "We didn't get a lot of literature but we got a lot of answers back, which was good". Some of the information had the effect of raising morale:

"Most of the information we did receive we had already implemented, which was wonderful for the staff to know that what we are doing is up there with the best."

The information requested included therapeutic gardens, medications and their effects, and new research data. As one clinical nurse consultant noted, with the computer "we now have the avenues for following them up. The night staff particularly benefited because, with 'streamlined' night staffing, they normally have limited interaction with other staff and don't normally get to participate in projects such as this.

"It's good to know that we're up there... I enjoy being in touch with the outside world; we also have information to share." (Night nurse)

Internet access was not the only development from the project. One of the clinical nurse consultants used the computer to develop ward charts. Previously a function which took 30-40 minutes per chart to do by hand and was inadequately handled by the administrative computer, the ward-based PC cut the time to a couple of minutes per chart and improved the quality.

The problem with a lot of the charting we do is that it is very clinically based... The nurses need to be able to do it at the ward level."

When asked what they would like in the future, all of the clinical nurse consultants agreed that a computer was required for each ward if *they* were to work effectively. "It would make our life a lot easier and give us more time if we [each] had a computer." Given their own needs, the potential for resident use had not yet surfaced.

However, unconsciously echoing the principal researcher quoted at the beginning of this report, one clinical nurse consultant noted:

"I also think people consider long-term care settings a low technologically advanced area and we really do need these advancements because it is a very progressive area of nursing care."

A more recent development at the CFCQ is the use of a PC to prepare and regularly update a required 'patient description' for each resident. It is too soon to tell whether this use will become a permanent strategy and how (or whether) the pilot project contributed to this development, but...

## 5. References

- [1] Zelmer, AM (1995). *I.T., Glamour & Long Term Care*, Faculty of Health Science, Central Queensland University, and the CFCQ, a videotaped report.
- [2] Ulyatt, J (1994). *Computers in long-term care settings: An interim project report*, Faculty of Health Science, Central Queensland University.
- [3] Sharp, Nancy (1993). *Nursing Management*, 24:5, 16.