

TRINITY COLLEGE  
UNIVERSITY OF DUBLIN

WHAT ARE MENTAL HEALTH NURSES ATTITUDES TOWARDS  
INFORMATION TECHNOLOGY AND HOW WILL THE INTRODUCTION OF A  
NEW ELECTRONIC MENTAL HEALTH INFORMATION SYSTEM IMPROVE  
THE DATA AVAILABILITY FOR THE MANAGEMENT OF A MENTAL HEALTH  
SERVICE IN IRELAND?

BY

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A DISSERTATION SUBMITTED TO THE FACULTY OF HEALTH SCIENCES IN  
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE  
DEGREE OF MASTER OF SCIENCE IN HEALTH SERVICES MANAGEMENT.

DUBLIN  
DECEMBER 2009

## **DECLARATION**

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Liam Donnelly

## **ACKNOWLEDGEMENTS**

I would like to sincerely thank all the people who helped make the completion of this dissertation possible.

Dr. Michael Byrne, my supervisor for this research project and his guidance throughout the project. His advice, knowledge, support and unfailing positive attitude were invaluable to me throughout this process.

Ms. Mandy Lee and Ms. Stephanie Culson for their assistance throughout the study and the programme.

Ms. Virginia Reid for agreeing to distribute the questionnaires and her advice pertaining to them.

The mental health nurses who participated in this study and took the time to complete the questionnaire.

And finally, my wife and children for all their support, encouragement and tolerance throughout the duration of this programme.

## SUMMARY

The mental health services in Ireland are currently going through a change process with the publication of A Vision for Change (Government of Ireland 2006). This report recommended measures should be put in place to collect data on community-based mental health services and an electronic patient record (EPR) should be introduced. This study aimed to gauge the impact of these recommendations on a mental health service both in the delivery of care and the impact on mental health nurses.

A review of the literature in relation to IT and health revealed that there was an abundance of research and studies regarding IT and health in general, but there was a limited body of knowledge on IT and mental health, particularly in the Irish context. The focus of this study was to examine Irish mental health nurses' attitudes towards IT. The central theme was to explore how and if the introduction of a new electronic mental health information system (WISDOM) would assist in the management of a mental health service in Ireland, and if it would impact on the delivery of care.

A quantitative approach was utilised to answer the research questions of this study. Mental health nurses from a mental health service in Donegal (n=200) were invited to participate in this study. A questionnaire was used to collect mostly quantitative data about mental health nurses knowledge and attitudes towards IT. The questionnaire received a response rate of 62.5% (n=125).

Findings from this study show that the majority of mental health nurses (95%; n=117) do have access to technology at work, but only 50% (n=62) replied that they used a computer for work purposes. Respondents were most confident with using a (computer) mouse 93% (n=114) and respondents used IT applications most for continuing professional education (33%; n=41) and accessing evidence based practice (27%; n=33). When asked if computers contributed to their professional role as a mental health nurse? 54.5% (n=68) of respondents agreed/strongly agreed that it did. Forty six per cent (n=57) of respondents replied that the WISDOM system would have a positive impact on the delivery of the mental health service. Forty eight per cent (n=61) replied that WISDOM would improve and add to the delivery of patient care. It does appear from the findings that mental health nurses were unclear and unsure about the

introduction of the new WISDOM system. This may change as staff become more familiar with its use.

This study highlights a number of issues for concern and further research should be undertaken to evaluate the impact on the standard of care and the cost-effectiveness of an increase in computer use in the area of mental health. This study could also be broadened to evaluate the use of IT among mental health nurses nationally and/or the impact of the introduction of WISDOM?

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## LIST OF ABBREVIATIONS

|        |   |
|--------|---|
| CDMS   | Chronic Disease Management System               |
| COMCAR | COMmunity CARE                                  |
| CPOE   | Computerised Physician Order Entry              |
| DMHS   | Donegal Mental Health Service                   |
| DoHC   | Department of Health and Children               |
| EHR    | Electronic Health Record                        |
| EMR    | Electronic Medical Record                       |
| EPR    | Electronic Patient Record                       |
| GVPN   | Government Virtual Private Network              |
| HIT    | Health Information Technology                   |
| HRB    | Health Research Board                           |
| HSE    | Health Services Executive                       |
| ICT    | Information and Communication Technology        |
| IPMS   | Integrated Patient Management System            |
| IT     | Information Technology                          |
| MDT    | Multidisciplinary Team                          |
| MHRU   | Mental Health Research Unit                     |
| NPIRS  | National Psychiatric Inpatient Reporting System |
| PI     | Performance Indicator                           |
| PPSN   | Public Service Number                           |
| PSI    | Patient Safety Indicator                        |
| SPSS   | Statistical Package for Social Sciences         |

## **Chapter One**

# 1 INTRODUCTION

The mental health services in Ireland are currently going through a change process with the publication of A Vision for Change (Government of Ireland 2006). This report recommended measures should be put in place to collect data on community-based mental health services and an electronic patient record (EPR) should be introduced. This study aimed to gauge the impact of these recommendations on a mental health service both in the delivery of care and the impact on mental health nurses.

The National Health Strategy, Quality and Fairness: A Health System for You (Government of Ireland, 2001) describes a vision for the health services in Ireland from 2001, and includes the present and the future, and defines the actions necessary to achieve this. This Health Strategy recognised that there was a need to update mental health policy and to modernise the service. As a result of this, in 2006, a new strategy document for the mental health services in Ireland was published called A Vision for Change (Government of Ireland, 2006). It describes a framework for building and fostering mental health across the entire community and for providing accessible, community-based, specialist services for people with a mental illness (Government of Ireland, 2006:8). A Vision for Change replaced Planning for the Future (Government of Ireland, 1984), which had been the policy document guiding the mental health services in Ireland. A Vision for Change noted that there was little known about the health information of people with a mental health problem in Ireland i.e. the number of people suffering from depression in the country is not known along with the type of treatment that they are receiving (Government of Ireland, 2006). Chapter 19 of A Vision for Change notes the central importance of information in the efficient management of a mental health service, and this is highlighted in recommendations 19.3 and 19.4:

- Recommendation 19.3: measures should be put in place to collect data on community-based mental health services.
- Recommendation 19.4: in accordance with the recommendation in the national Health Information Strategy, an EPR should be introduced with a unique identifier for every individual in the state (Government of Ireland, 2006:205 & 206).

It should also be noted that the Mental Health Act 2001 (Government of Ireland, 2001) was enacted in November 2006 and replaced the Mental Treatment Act 1945 (Government of Ireland, 1945). The Mental Health Act 2001 has placed legislative data requirements on the mental health services.

## **1.1 Background and Context**

The National Psychiatric Inpatient Reporting System (NPIRS) is the only national psychiatric in-patient database in Ireland and was established on the recommendation of the Commission of Enquiry on Mental Illness (Department of Health, 1966). It is maintained by the Health Research Board (HRB) and the Mental Health Research Unit (MHRU) and reports and presents data on all admissions, discharges and deaths in psychiatric hospitals in Ireland (Daly et al., 2006; Flynn, 2006). Cross-sectional data is presented nationally, regionally (by Health Services Executive (HSE) administrative areas), locally (by county and by individual unit and hospital) and by hospital type. Variables such as age, gender, marital status, socio-economic group, legal status, diagnosis and length of stay are used to present this data (Daly et al., 2006). Currently within mental health, these records are returned manually (10%) or electronically (90%) according to agreed specifications (Flynn, 2006).

As already mentioned, A Vision for Change recommended the introduction of an EPR with a unique identifier for every individual in the state such as the Public Service Number (PPSN). This would ensure greater integrity of data and allow the HRB to distinguish between individuals and events and provide longitudinal analysis of data, enabling more effective planning of services (Daly et al., 2006). A Vision for Change established that a unique identifier is essential to facilitate effective epidemiological research (Government of Ireland, 2006:207). In response to this requirement, the HRB developed a Microsoft Access database called COMCAR (COMmunity CARE) in 2003 for general adult psychiatry, psychiatry of later life, liaison psychiatry and child and adolescent psychiatry. This provides information and activity levels for out-patient clinics, day centres, day hospitals and community residences (Daly et al., 2006; Flynn, 2006).

The main purposes of NPIRS/COMCAR are to:

- Provide an information system for service providers;
- Produce timely reports on national activity, census data and data on performance indicators (PI's) for service planners and policy makers i.e. Department of Health and Children (DoHC) and the HSE;
- Provide epidemiological data;
- Aid in multidisciplinary research (Flynn, 2006).

In 2005, the HRB undertook a review of the database used by the MHRU to develop a stable, robust and extensible system using a web based application that could combine both in-patient data and community care activity (Daly et al., 2006). A primary requirement in the development of NPIRS/COMCAR is that the information recorded in the database could be transferred to and from any future information technology (IT) system – integrated patient management system (IPMS) planned for implementation throughout the health service in Ireland (Daly et al., 2006). The HSE (mental health and ICT directorates) and the HRB are working in partnership to ensure a phased roll-out of the NPIRS/COMCAR system for mental health. The first phase of this implementation has already commenced with the Donegal Mental Health Service (DMHS) chosen as the pilot site for this project. Because this database will be used specifically for mental health, NPIRS/COMCAR has been changed to WISDOM.

## **1.2 What is WISDOM?**

WISDOM is an integrated web-based mental health information system to record service user's activity for in-patient and community mental health care services in Ireland, and will be used to facilitate delivery of a quality mental health service (HRB, 2008a; HRB, 2008b; ICT Programme Management Office, 2008). WISDOM will be used in a variety of HSE locations and by various members of multidisciplinary teams (MDT's) and will be implemented in the following services within the DMHS:

- Multidisciplinary Community Mental Health Teams;
- Adult mental Health Teams;
- Psychiatry of Later Life;
- Child and Adolescent Psychiatry;

- Rehabilitation and Recovery Team;
- Psychiatric Liaison Team;
- Day Hospitals;
- Day Centres;
- Community Residences;
- Acute Inpatient settings (ICT Programme Management Office, 2008)

See appendix 1 for more information on WISDOM

### **1.3 The use of IT in Health and in Mental Health**

The health services in Ireland are going through a process of transformation, and central to this programme is the development of a unified national information and communications technology (ICT) infrastructure and support services and the development of clinical and administrative systems (Health Services Executive, 2007). In designing a patient information system, designers must ensure that the business goals match the goals of the patient (Bayne, 1997).

There are three ways in which information systems can be harnessed: clinical, technical and decision making applications (Sheaff & Peel, 1995). In mental health there is a need for ICT as noted by the Mental Health Commission (MHC). Systematic evaluation and review of the mental health services underpinned by best practice will enable providers to deliver quality services supported and informed by an integrated mental health information system (MHC, 2007:49).

What underpins ICT in health care? There is a national information strategy relating to information and ICT contained within the National Health Information Strategy (Government of Ireland, 2004), Health Strategy, Quality and Fairness (Government of Ireland, 2001) and regarding mental health specifically in A Vision for Change (Government of Ireland, 2006). An information strategy is aimed at ensuring that an organisation's information systems and IT are linked to and support its objectives and should state the key information that is required along with the information systems and technologies required (Sheaff & Peel, 1995).



## **1.4 Overview of present study**

The aim of this research study was threefold:

- 1 To investigate if the introduction of an electronic mental health information system (WISDOM) could improve the data availability for the management of a mental health service in Ireland?
- 2 To examine how the introduction of such a system could impact on the delivery of care?
- 3 To examine mental health nurses attitudes towards IT.

For specific objectives and research questions see appendix 2 and methodology chapter.

## **Chapter Two**

## **2 LITERATURE REVIEW**

### **2.1 Overview**

A literature review is a “critical review of previous literature relating to a research topic, the aim of which is to prepare the ground for new research” (Cormack, 2000:22). This chapter examines the literature pertaining to information and communications technology (ICT) and how it impacts or does not impact on the delivery of health care, with particular attention paid to mental health. The research strategy involved a review of the following databases: EBSCO, CINAHL, MEDLINE, Pubmed and ABI Inform. Resources in the library at the Centre for Nurse and Midwifery Education in Letterkenny, Co. Donegal were also utilised. In an attempt to obtain a comprehensive body of the existing literature, a number of different search terms were used including: “information technology”, “health information technology”, “ICT in health”, “ICT in mental health”, “mental health information system”, “electronic patient record”, “electronic health record” and “electronic medical record”. A number of the above terms were also further broken down or combined to facilitate a rich harvest of existing information and available data. The literature uncovered from this search is discussed in this chapter.

### **2.2 The use of IT in Health Care**

Information technology (IT) is defined as the development, installation and implementation of computer systems and applications, including hardware, software, networking and communication tool (Doebbeling, Chou & Tierney, 2006). Willmer (2007) notes that ICT is defined as primarily using a computer to receive process and disseminate information electronically. Sheaff and Peel (1995:7) note that “health care informatics develop at the junction of health care management, economics, accounting, clinical practice and information technology”. They also note that good information is crucial to decision making and effective management in any organisation.

Health care organisations are also confronting an increasingly turbulent and rapidly changing world that are coming from multiple directions including medical and technical innovation, and health care IT departments will need to become more agile to support this change (Glaser, 2008). Safe, high-quality health care delivery is a pivotal

component in the greater quality-of-life where efficient communication networks enable clinicians and patients alike to make informed decisions about health care (Corley, 2007). IT has the promise to improve the cost, quality and safety of health care delivery and health care information must be shared across diverse systems to ensure this (Corley, 2007). Over the past 25 years, the face and conduct of clinical practice has changed in all areas of health care and the contributing factors to this include:

- New models of health funding;
- Increasing health care costs;
- The changing perspective of the public about the role of health care professionals;
- Developments in information technology (Walter, Cleary & Rey, 2000).

One of the latest challenges is the integration of health care with information technology (Ball, 2000). Over the past decade there has been a growing interest towards moving to an electronic documentation system that will support and improve the medical records of clients (Booth, 2006). Although computers are taken for granted and can be used for every purpose, direct computer support for clinical practice in mental health is a relatively new idea (Johnson, Benbow & Baldwin, 1999).

It is becoming increasingly clear that unless the collection, distribution and analysis of clinical information becomes automated, health care and its providers will be unable to cope with the degree and volume of reporting to meet accountability requirements in an ever risk bearing environment (Delpizzo, 2000).

Primary health care delivery is a crucial element of national health care delivery especially where the majority of the population live in rural areas and rely on governmental systems of health care (Byrne & Sahay, 2007). The potential of ICT to support all data reporting systems is being recognised along with the types of IT that will be required to accomplish this such as name based record systems (Byrne & Sahay, 2007). The efficiency of modern health care and patient safety relies more and more upon a computerised infrastructure, where open distributed information systems have commenced bringing professionals and patients (service users) together at a national and worldwide level (Nymark, 2007).

## **2.3 IT and Nursing**

According to Maddern (2006), nurses' seem more likely to moan about having to get to grips with IT compared to other health professionals, even though computers are essential tools for the collection and reporting of patient information. Because IT systems are designed to help nurses improve patient care, then nurses need to be involved in their development and trained in their use (Osborne, 2006).

According to Gelinas (2008), IT can help performance measurement initiatives and the electronic medical record (EMR) can automate essential functions, improving quality reporting and reduce the nurse's burden. As health care delivery systems change, more and more nurses use computers in their practice (Toofany, 2006) and IT enables nurses to obtain critical patient information rapidly while delivering care (Bahlman & Johnson, 2005). Nursing informatics results from integrating the triad of computer, information and nursing sciences and has evolved to assist in the management and processing of nursing data, information and knowledge to support nursing practice, education, research and administration (Kaminski, 2009).

The Healthcare Information and Management Systems Society (HIMSS) survey (2004) found that on the job training ranked as the primary way nursing professionals learn this specialty, and 50% of respondents had at least 16 years work experience and 21% with 11 to 15 years experience before making the informatics transition (HIMSS, 2004). Clinical documentation (74%), clinical information systems (71%), nursing clinical documentation (68%) and EMR (48%) are the main applications used by nursing professionals in the area of informatics (HIMSS, 2004).

In a study of graduating nurses, Fetter (2009) found student nurses are most confident in the internet, word processing and systems operation skills and less confident on care documentation and planning, valuing informatics knowledge, skills development and data entry competencies. One of the main reasons historically that nursing has not embraced IT (and in particular, the desktop computer) is that it can keep them away from their patients for several hours a day (Nacey, 2007). Hosker (2007) notes that computerisation has facilitated nurses in the fulfilment of their multifaceted role and

consequently enhanced the quality and efficiency of nursing practice and will continue to do this.

Competencies such as the ability to provide patient-centred care, collaborating as part of a multi disciplinary team and using evidence to guide work practices are all underlined by the ability of nurses to use IT (Billings, 2008). Quality patient care and improved health care systems depend on nurses who can use IT (Billings, 2008). However, nurses are becoming more aware of e-health and are generally supportive of its contribution to patient care and its ability to offer ways of sharing patient information, and the access it provides clinical data for benchmarking and audit (Wallis, 2007).

Comprehensive data is required to determine optimal nurse staffing practices and provide evidence-based recommendations for policy, staffing models and integration into practice (Spence et al., 2006). IT will help address the issues and challenges and promote new solutions to support evidence-based staffing (Hyun et al., 2008). Staffing decisions that lack consideration of all relevant factors may result in poor patient outcomes (Hyun et al., 2008). IT offers a very modern way for nurses to manage their time and be efficient and effective in the workplace for the benefit of their patients (Willmer, 2005).

## **2.4 Positive Aspects/Advantages of using IT in Health Care**

There is no data in the Irish context to answer this, hence the need for this research study. Research questions one and two of the study will examine these outcomes in an Irish mental health setting. The following are some advantages and positive aspects of using IT, some of which are anticipated to be found in this study.

**Table 2.1 Positive Aspects/Advantages of using IT in Health Care**

|  |
|--|
| Leads to better management of care   |
| Better informs treatment decisions   |
| Improves/enhances the quality of care  |
| Aids in assessment and diagnosis   |
| Allows for continuity of patient care  |
| Eliminates the duplication of patient records  |
| Allows medical expertise to be obtained from a distance  |
| Lowering of operational/health care costs  |
| Increased cost effectiveness and savings   |
| Computerised records are easy to store and lead to increased efficiency through time saving                              |
| Electronic records promote accountability  |
| Streamlines clinical processes   |
| Reduces medical errors thus enhancing patient safety   |
| Minimise communication errors and so improve patient care  |
| IT systems can act as a communication conduit to facilitate shared access to critical clinical and decision support data |
| Improve interdisciplinary communication and collaboration  |
| Improve access and availability of clinical information  |
| E-mail allows for communication to take place at any time and across any distance  |

#### **2.4.1 Enhances Quality of Care/Patient Care/Improves Clinical Practice**

The use of IT leads to better management of care (Schuman, 2006), and better informs treatment decisions (Balaban, 1998) improves/enhances the quality of care (Baldwin, 2008; Buell, 2007; Darbyshire, 2004; Fleming, 2007; Fox, Poikonen & Gumpfer, 2008; Glaser, 2007; Hensing et al., 2008; Mangalampalli et al., 2006; Noto, 2005; Sensmeier, 2006). IT also aids in assessment and diagnosis (Walter, Cleary & Rey, 2000). Continuity of patient care is another winner of the implementation of an electronic health record (HER) (Allan & Robbins, 2006) which eliminates the duplication of medical records (Bowers, 2007). The use of computerisation of medical records will

lead to great improvements in health care quality (Puskar et al., 2004). IT also allows medical expertise to be obtained from a distance (Nymark, 2007).

#### **2.4.2 Low/Decreased Costs and Increased Cost Effectiveness**

Some long term benefits of IT in health care include reductions in certain practice/clinical costs (Margolis, 2008) lowering of operating/health care costs (DePhillips, 2007; Mangalampalli et al., 2006; Puskar et al., 2004) and increased cost effectiveness/savings (Christensen, Griffiths & Evans, 2002; Davidson & Heslinga, 2007; Seidenberg, 2008). EHRs are seen by many as essential contributors to reduce health care costs (Glaser, 2007). Prices of EHR systems are falling as a result of a crowded and competitive market (Schuman, 2006). Parente and Van Horn (2007) conducted a study using two sources, Healthcare Information and Management Systems Society Dorenfest database (providing information on IT investments in nearly 3,000 U.S. hospitals annually) and the Medicare cost reports. The aim of this study was to investigate whether hospital IT investments meet the underlying, but different economic goals of for-profit and not-for-profit hospitals as they found that there was a shortage of studies that demonstrated what is the payback from IT investment (Parente & Van Horn, 2007). This study found that for-profit hospitals will invest in IT to maximise profits and minimise costs, and that not-for-profit hospitals will invest in IT systems to maximise volume, similar production objectives although put in different ways (Parente & Van Horn, 2007). Shekelle, Morton and Keeler (2006) prepared a report to assess the evidence base regarding the costs and benefits of health information technology (HIT) systems. Eight hundred and fifty five studies were screened with two hundred and fifty six in the final analyses. All cost benefit analyses predicted substantial savings from EHR implementation.

Birch and Gafni (2004:40) note that maximising the impact of NHS resources on the health of the population that is being served cannot be established by reference to the costs and consequences of particular technologies of interest. They also note that using NICE guidelines to inform decisions about new technologies may lead to increased resources allocated to new technologies (and maybe a waste of resources). Whitten et al. (2002) while reviewing cost benefit studies of telemedicine concluded that there is no good evidence that telemedicine is a cost effective means of delivering health care.



### **2.4.3 Increased Efficiency**

Computerised records obviate the problem of where to locate case files (Johnson, Benbow & Baldwin, 1999). IT and the EHR eliminate the need for medical staff to photocopy and disseminate duplicate medical record documents and to physically pull and file charts and documents leading to increased efficiency (Gates & Urquhart, 2007; Schuman, 2006; Sickenberger, 2001). Electronic records also promote accountability (Cleary & Freeman, 2005) and help streamline clinical processes and make workflow more efficient (Fleming, 2007; Shields et al., 2007). The integration of IT in health care possesses the potential to manage large volumes of sensitive patient information and increase operational efficiency (DePhillips, 2007; Margolis, 2008; Puskar et al., 2004) and IT aids effective practice (Carrillio, 2007). Results of the study, *eHealth in Canadian Hospitals: Variations on a Theme*, found the majority of nurses and physicians agreed that ICT improves productivity and enhanced patient safety (Anonymous, 2005).

### **2.4.4 Increased/Enhanced Patient Safety**

A health care IT system will allow centralised access to medical terminology and standards, as well as mapping between them to enhance patient safety, and health care IT is a proven and valuable means to mitigating medication errors (Health Management Technology, 2008). From a patient safety perspective, health care IT will identify risky situations, potentially harmful practices and medication errors along with alerting, reporting and analysing these events to prevent, minimise and eliminate future harm or death (Health Management Technology, 2008). IT, particularly mobile IT can minimise communication errors between nurses and so improve patient care (Moss, 2005; Simpson, 2005).

Clamp and Keen's (2007) literature review of the impact of EHR on clinical work and administration also noted;

- Reduction in medical error rates;
- Reduction in preventable adverse drug event rates (Clamp & Keen, 2007:7).

Menachemi et al. (2007) explored the relationship between overall IT adoption and patient safety performance across hospitals in Florida, USA. In analysing the

relationship between measures of IT adoption and patient safety indicators (PSIs), they found that eight PSIs were related to at least one measure of IT adoption. Compared with administrative IT adoption, clinical IT adoption was related to more patient safety outcome measures and, the adoption of IT is associated with desirable performance on many measures of patient safety while in hospital (Menachemi et al., 2007).

With the use of an EMR system, staff are able to distribute medications at the point-of-care, and double-check for specific patient information, such as weight, drug interactions and allergies, reducing the risk of medication error occurring thus improving patient safety (Buell, 2007; Doebelling, Chou & Tirenay 2006; Hensing et al., 2008; Puskar et al., 2004). IT allows for the production of more legible medical notes, again minimising the potential for medical error (DePhillips, 2007; Fleming, 2007; Glaser, 2007; Menachemi et al., 2007; Meyer, 2000; Schuman, 2006; Wallis, 2007) and so avoiding future adverse and sentinel events (Schwend, 2008).

#### **2.4.5 Improves Communication /Facilitates Sharing of Information**

Although sophisticated health care IT systems are not a remedy, they can act as a communication conduit to facilitate shared access to critical clinical and decision support data (Health Management Technology, 2008). According to Hospital Home Health (2008), a system of unique patient identifiers would make medical information more complete, accurate, private and secure, and allow patients to decide who has access to their health records.

In reviewing a survey carried out by the Healthcare Information Management Systems Society Nursing Informatics Task Force, Sensmeier (2006) evaluated the results of this web survey, which had a primary goal to see what was gained or lost with the use of health IT, particularly the nursing roles of collaboration and communication. Sensmeier (2006) found that the general advantages of health IT identified by more than two thirds of respondents included improved interdisciplinary communication/collaboration, patient and family participation in care and care efficiency. Seventy one per cent stated that the ability of the nurse to access information electronically enhanced their ability to independently make decisions (Sensmeier, 2006) and the majority of respondents wanted a complete EMR and not a combination of paperless and paper. Sensmeier

(2006) concludes that current available health IT tools are supportive of the evolving role of the nurse as a care manager, but there is room for improvement.

Follen et al. (2007) used a case study approach to examine the implementation and use of an EMR and chronic disease management system (CDMS) at a multidisciplinary group management system in the U.S. and examined how these systems are used to enhance patient care and provider satisfaction. This study illustrated that the EMR and CDMS are useful tools that allow care managers to more seamlessly work together with other members of the health care team to customise care management programmes for patients (Follen et al., 2007). As a result of this study (Follen et al., 2007) note that from a health care policy perspective, given the tremendous benefit of health IT systems in applied health care settings, more widespread efforts aimed at increasing utilisation and adoption rates are warranted.

One of the main advantages of an EHR for a clinician is improved access and availability of clinical and patient information, and better links between hospitals and community regarding inpatients and day patients (Johnson, Benbow & Baldwin, 1999; Wallis, 2007). The computerised record also generates lists of patients for discussion review at team and liaison meetings (Johnson, Benbow & Baldwin, 1999). E-mail allows the ability to communicate with individuals or groups regardless of geographical location or time (Cleary & Freeman, 2005). It is generally accepted that IT improves the communicative and networking capabilities of health care professionals (Toofany, 2006) and IT can also improve the exchange of information between patients and health care providers (Lolli, 2007). Shekelle, Morton and Keeler's (2006) review demonstrated improvements in provider performance when clinical information management and support tools were made available within an EHR system.

## 2.5 Negative Aspects/Disadvantages of using IT in Health Care

**Table 2.2 Negative Aspects/Disadvantages of using IT in Health Care**

|  |
|--|
| Cost can be high with little financial gain  |
| Privacy and security concerns  |
| Problems around confidentiality  |
| User unfriendly systems  |
| Requires a significant investment in software, hardware and technical support                                      |
| Unauthorised duplication and transmission of electronic records  |
| Computer anxiety leading to non use  |
| Use and abuse of e-mails   |
| Risk of system crashing resulting in loss of information, time being wasted and frustration for the IT user        |
| IT may not be meeting user needs   |
| Consumes resources with few tangible results   |
| Investment not accompanied with assessment of basic computer and software skill set necessary for nurses and users |

### 2.5.1 High Cost of IT/Increased Use of Valuable Resources

The estimates of up-front investment costs for hardware, software and training vary greatly (Davidson & Heslinga, 2007). In order to operate a successful EPR in practice, a significant financial investment in software, hardware and technical support personnel are required (Booth, 2006). There have been very few cost-benefit analysis studies conducted on the implementation of EPRs in health care, but the ones that have been completed show both financial gains and losses (Kaufman, 2005). Costs are a major consideration when introducing IT in health care (Adams, 2008; Callan & DeShazo, 2007; Christensen, Griffiths & Evans, 2002; Grant, 2008; Hunter & Ciotti, 2006; Puskar et al., 2004) and can be seen as a black hole that consumes resources with few tangible results (Greenwalt & Riney, 2007). A key factor in preventing ITs ascent into greatness comes from its closest friend – funding, research, implementation, purchasing and disruption which ultimately all cost money (Barlow, 2008). Hospitals often invest in IT

without appropriately assessing the basic computer and software skill set necessary for nurses and HIT users (Szydlowski & Smith, 2009).

### **2.5.2 Issues of Security, Privacy and Confidentiality**

Booth (2006) notes that privacy and security concerns surrounding the use of EPRs in health care must be recognised as a justified concern. One British study found that patients expressed concerns regarding the confidentiality of computerised records, including access to records (Carman & Britten, 1995). Potential problems of confidentiality and security are a major concern with IT (Christensen, Griffiths & Evans, 2002; Puskar et al., 2004; Walter, Cleary & Rey, 2000). IT brings ease of access to and use of patients' medical records but this threatens patient privacy, data integrity and health care professional secrecy (Nymark, 2007) because they can easily be duplicated and transmitted to unauthorised people (Myers et al., 2008).

### **2.5.3 Increases Stress/Apprehension**

Some health care workers are reluctant to use computers because of computer anxiety (Walter, Cleary & Rey, 2000). The indiscriminate or ill-advised use of e-mail continues to be a source of stress and conflict within mental health nursing (Cleary & Freeman, 2005). IT was cited by 30% of general practitioners as one of the factors that contributed to their stress in 2005 (Doctor, 2006) and many nurses feel apprehensive and even fearful when contemplating IT use (Toofany, 2006).

### **2.5.4 Unreliability/Risk of Crashing/User Unfriendly**

Another potential problem in the use of IT is the ability of the system to crash resulting in the loss of information, time being wasted and frustration for the IT user (Puskar et al., 2004). Computers crashing and e-mail freezing are just some of the pitfalls of IT (Doctor, 2006) along with bugs in the system (Hunter & Ciotti, 2006). Some health care workers are reluctant to embrace IT because a system can be user unfriendly (Walter, Cleary & Rey, 2000). Some IT/EPR products may not meet the specific needs of certain specialties in health care (Trustee, 2008).

## **2.6 The Factors that Assist in the Introduction of IT in Health and help to make it work**

### **2.6.1 Staff Consultation/User Acceptance**

Before installing a computer or other IT system, it is important to ascertain the views, opinions and expectations of staff regarding IT to ensure these changes are to be beneficial (Walter, Cleary & Rey, 2000). The successful implementation of IT systems is highly dependent on user acceptance and if health care staff such as nurses are to embrace IT, they must be consulted on its introduction and use and not overlooked in the change management process (Toofany, 2006; Wallis, 2007; Zambutto & Grimes, 2008). First and foremost, talk to staff and engage them in IT decision making, because they know better than anyone what makes their jobs difficult and what can be done to make them easier and more effective (Horn, 2006). This will instil confidence that the technology meets their needs and will ensure “buy in” (Nacey, 2007). According to Burke (2006) and Hunter and Ciotti (2006) executives who do not involve the end users (staff) in the selection process run the risk of the end product being unpopular and ineffectual. No one person is going to make an EHR happen, and concerns both big and small need to be resolved before any decisions are made, and this means everybody involved needs to be part of the discussions (Callan & DeShazo, 2007; Herr, 2008).

Davidson and Heslinga (2007) undertook an action research methodology to study the social and organisational processes associated with adopting and assimilating EHRs into small physician practices in Hawaii. The findings of this study do suggest that substantial barriers do exist to the adoption of EHR systems and that technology use mediation may be an essential process for the adoption and assimilation of EHRs in small physician practices in Hawaii (Davidson & Heslinga, 2007) and likely elsewhere. Szydlowski and Smith (2009:8) found that for HIT implementation to be a success, the following was required:

1. Interdepartmental collaboration for HIT implementation;
2. Changes in HIT implementation;
3. Balancing clinical time with HIT training;
4. Engaging employees in personal HIT interest;
5. Having a shared vision of HIT impact on future health and

6. Communication techniques if HIT implementation must be changed or addressed, supporting the need for the management functions of planning, organizing, controlling, evaluating and staffing.

### **2.6.2 Provision of Adequate Resources**

EHR implementation must be scaled to an individual organisation's budget and staff resources (Peres, 2005). A realistic budget requires development for the entire implementation process including training and support costs (Callan & DeShazo, 2007). A formal process for project approval needs to be in place to assure that IT projects have the resources they need to succeed (Kropf & Scalzi, 2008). It will be necessary to identify resources to maintain an effective maintenance programme for an immediate response to hardware and software difficulties, along with a team of staff to provide a high level support service (Johnson, Benbow & Baldwin, 1999). Finally, according to Doebbeling, Chou and Tierney (2006), IT implementation requires the support and resources of the organisation and its management.

### **2.6.3 Adequate Planning**

Hospitals are required to have a plan in place for how they are going to address their IT issues, and for many hospitals, a successful IT implementation requires a strategic plan to address their automation needs (Buell, 2007). The introduction of new complex technologies, and the successful selection and deployment of these technologies requires the adoption of a strategic technology plan (Zambutto & Grimes, 2008). It is critical to incorporate a structured discovery process early in the project plan to maximise resource utilisation, develop training strategies and to build in patient safety (Koch, Racela & Ruiz, 2008).

When a new health IT system is introduced, three factors are important:

1. The technical quality of previous IT systems that have been implemented.
2. The general organisational climate – is it positive or negative, co-operative or adversarial, etc.
3. The quality of the process used to implement previous IT systems (Dewan, Lorenzi & Zheng, 2004).

A number of strategies have been suggested to facilitate IT implementation in health care settings, the first being to assess both current information-management capabilities and estimate future needs to assess if the organisation is ready for change (Doebbell, Chou & Tierney, 2006).

#### **2.6.4 Good Leadership**

The implementation of health IT requires dedicated, committed leaders to make it happen, and to bring about a change in the health care culture. To be successful, leaders should:

- Consider what is needed to allow the change to happen.
- Consider incentives that may help with the acceptance of the new technology.
- Analyze the impact the technology will have on work practices (Callan, 2008).

Boynton, Zmud and Jacobs (1994) looked at three factors that were expected to contribute to an organisation's ability to absorb new technological innovations:

1. Managerial IT knowledge;
2. IT management process effectiveness and
3. IT management climate.

The analysis of the survey carried out by Boynton, Zmud and Jacobs (1994) showed that all three factors did impact on IT use.

### **2.7 Factors that Impede the Introduction of IT into Health**

#### **2.7.1 Time Constraints**

There are time uncertainties when adapting to new technologies. Time pressure represents one of the most significant barriers to the adoption of potentially useful technologies (Johnson, 2001). There can be insufficient time to select, contract, install and implement an EHR (Pope, 2005) along with the fact that learning about new IT takes time away from patient and clinical interaction (DePhillips, 2007).



### **2.7.2 Costs/Lack of Resources**

Cost and resource shortages are other factors that can impede the adoption of new IT (Kazley & Ozcan, 2007). Johnson (2001) notes that IT is not a one-time or a low risk investment and that lack of capital investment/resources are the biggest barrier to introducing IT (Pope, 2005; Wilson, 2009). Other important factors that impede the introduction of IT are:

### **2.7.3 Confidentiality/Security Issues**

According to Johnson (2001), the adoption of IT is often impeded by questions about concerns between security and access, and what is acceptable to consumers (patients) and how the information gets disseminated. In a study carried out by Wisdom, Bielavitz and French (2008), an interviewee said that *the lack of a universal data management system causes client information to get lost between agencies*. McGraw et al. (2009) note that efforts to advance health IT have not adequately addressed the issue of privacy and security.

### **2.7.4 Staff Attitudes and Staff Resistance**

Staff attitudes/resistance is also a factor that impedes IT introduction. This includes organisational, cultural and technological factors and more specifically the nature of the clinical decision-making process in psychiatry (Kotze & Brdaroska, 2004). HIT implementations have created major disruptions in workflows and tremendous upheaval among staff, especially during the early stages of use (DePhillips, 2007). In a study that appeared in the Canadian Medical Association Journal, three case studies were documented in which the introduction of IT systems in three hospitals was met with varying degrees of resistance and contention among staff (Lapointe, 2006). In one case a physician resigned and in another, an IT system was reduced to only 25% of its intended functional capacity (Lapointe, 2006). Staff resistance may stem from a variety of factors, including a lack of insight about the benefits of IT, their concern about the depth of change caused by IT, and their ambivalence about the processes that IT is designed to improve (Johnson, 2001).

### **2.7.5 Lack of Staff Consultation**

Lack of staff consultation also impedes the introduction of IT and according to Johnson (2001), caregivers (and other stakeholders) who are not informed about the capabilities of IT, may discourage or fail to support its implementation and use. The lack of clinical input has been cited by as a major factor in the failure of IT in the health sector (Heathfield, Pitty & Hanka, 1998).

## **2.8 The use of IT in Health and in Mental Health**

This section will look at some of the technology that is available to health professionals and why and how these applications can be used in the health arena.

### **2.8.1 Electronic Health Records (EHR)/Electronic Medical Records (EMR)/Electronic Patient Records (EPR)**

With the downsizing of inpatient beds over the past number of years in psychiatric hospitals and a move towards more community based care as per governmental policy A Vision for Change (Government of Ireland, 2006) and Planning for the Future (Government of Ireland, 1984), more emphasis is being placed upon refining the existing psychiatric services to make them more efficient (Booth, 2006). One solution that has been put forward is the use of EPR to streamline information and expedite record keeping for patients who are in hospital (Booth, 2006). Information needs to be streamlined to be more efficient and to minimise redundancy (Puskar et al., 2004).

The literature confirms that the EMR provides health professionals with a system that manages clinical documentation and improves operational efficiency, ensuring accuracy, reduced costs and standardisation of documents (Corley, 2003; Laing, 2002; Wager et al., 2000; Zolot, 1999). EHRs have been developed using various information system technologies including databases, data warehouses and data mining which are ways of storing and analysing information (Mangalampalli et al., 2006). See appendix 3 for features of an EHR.

### **2.8.2 E-mail/E-health**

Technology also involves the use of online, real-time connections to outside resources by means of web conferencing for example, which is designed to work even over slow, low quality internet connections (Merchant, Cook & Missen, 2007). According to the Royal College of Nursing (2006) the aspects of ICT as it relates to health care, including EPR is often referred to as e-health. See appendix 4 for features of e-mail.

Patients are calling for provider-patient communication through e-mail and online portals to schedule appointments, see lab results and to take an active role in managing their own medical information and communicate with health care providers (Fleming, 2007). The role of the internet in health care information access and delivery is increasing rapidly according to Harrison and Lee (2006) and, is evidenced by the fact that 86% of adults with internet access have used it for health related information and health queries representing 37% of their total internet usage. Fifty per cent of consumers show significant interest in accessing their own medical information via the internet (Harrison & Lee, 2006).

### **2.8.3 Provision of Quality Care**

Point-of-care technology, or technology that keeps clinicians at the patient bedside, enhances clinician productivity and facilitates the capture of important data (Puskar et al., 2004). Today's integrated diagnostic systems facilitate the collection and analysis of massive amounts of data, and the presentation of this data as results in the form of meaningful information, assisting the clinician in providing effective care at earlier stages using therapies that are much less intrusive to the patient (Zambutto & Grimes, 2008). IT is the force that can pull and keep data together while crossing the quality chasm because it is the continuous link required between science to service and service to science (Power, 2005). IT is a powerful tool that can transform health care as it can get health care to people who cannot get it any other way (Power, 2005). Ultimately, any IT implemented should offer improved patient outcomes (Fox, Poikonen & Gumpfer, 2008).

Clamp and Keen (2007) conducted a review of the literature reviewing the impact of EHR on clinical work and administration. The findings from this review identified a

number of variables that a computerised physician order entry (CPOE) might be expected to influence, such as:

- Standardisation of care (through the use of defined protocols and clinical decision support);
- Improves quality of care (through faster access to information);
- Improved efficiency of care delivery (through automation of manual tasks, reduction in illegibility and reduced turnaround time);
- Cost savings (Clamp & Keen, 2007:7).

As a result of this literature review, Clamp and Keen (2007) argue that up until then, the literature had largely failed to deliver usable findings and the evidence base on EHR was disappointing.

A quantitative survey using questionnaires was carried out by Crowley, Davis and Steadman (2006). This survey demonstrated that there is a very strong interest in ICT-based interventions among users of a community mental health team (CMHT) with the potential uses of ICT in service delivery and improvement being practically inexhaustible (Crowley, Davis & Steadman, 2006). However users of CMHTs may for a variety of reasons experience difficulties in accessing these interventions with the future challenge being one of promoting inclusiveness through equity of access (Crowley, Davis & Steadman, 2006).

Sävenstedt, Sandman and Zingmark (2006) undertook a qualitative study to evaluate the values and perceptions held by professional carers of older people about the use of ICT applications. The interpretation of values and perceptions among carers revealed a duality where the carers perceived ICT as a promoter of both humane and inhumane care which made them defensive, and resistant to change. There was evidence of resistance among professional carers towards the introduction of ICT applications in elder care, as carers considered that the same attributes of ICT that could promote humane care could also lead to dehumanised care. Sävenstedt, Sandman and Zingmark (2006) note that a limitation of this study could be that similar studies in other contexts may arrive at different results. The EMR is central to improved quality of health care (Callan, 2008)

#### **2.8.4 IT and Mental Health**

Power (2005) notes that to improve access and accountability for mental health services, IT will become a major driving force for informing, co-ordinating and delivering care. According to Lambousis et al. (2002) there is a growing need for telecommunications in mental health along with IT, so they can be used to create a comprehensive mental health system and improve existing services.

The application of IT to mental health services is e-mental health and includes all forms of electronic mental health delivered over the internet (Lambousis et al., 2002). E-mental health refers to mental health services and information delivered or enhanced through the internet and related technologies (Christensen, Griffiths & Evans, 2002:3). E-mental health provides the possibility of access from remote and urban under-served areas to medical information and communication with specialists in a way that is an alternative to everyday practice (Lambousis et al., 2002). Siriwardena et al. (2008) note that there is evidence of dissatisfaction with professional interactions, particularly with those with mental health difficulties and centres around the concern that practitioners don't listen. The developing EHR can improve this interaction along with the use of social networking technology (Web 2.0) and social networking sites like FaceBook and MySpace to allow the better sharing of information between users themselves, between users and providers, and between providers and users (Siriwardena et al., 2008) but has not yet been proven.

### **2.9 Gaps in Current Research**

A lot of the research identifies that there is great potential for IT to improve the quality of care, the access to care, and to contain costs (Davidson & Heslinga, 2007) and the need for ongoing collaboration between clinical and IT staff and their managers (Johnson, Benbow & Baldwin, 1999).

Walter, Cleary and Rey (2000) note that there have been no published surveys of multidisciplinary staff from a mental health service regarding attitude to computer use, a gap that this research project will hopefully fill (at least with regard to mental health nurses).

Shields et al. (2007) note that monitoring the diffusion of health IT among providers that care for underserved populations must be central to reduce health disparities. ICT in health can be and is expensive to implement and, Bonneville (2006) agrees that the quality of life is the end goal of health services and that the economic as well as the clinical and therapeutic benefit of ICT in health care should be examined.

Szydlowski and Smith (2009) note that future researchers could answer questions about the preparation, resources and time necessary to successfully implement HIT. Bakken (2006) notes that additional nursing research is needed in regard to the use and effect of various informatics tools. There appears to be a limited base of research on mental health nurse attitudes towards IT and a lack of any Irish data.

## **2.10 Conclusion**

A critical review of the literature in relation to ICT and health and how it impacts on the delivery of health care exposes a paucity of research, and provides an informative, contextual and theoretical basis for this study. While research in the mental health setting does exist, it is not numerous or readily available.

The use of IT in health care is warranted as it can improve the cost saving, quality and safety of health care delivery where information is distributed in an open way on a computerised infrastructure. The literature suggests the role of IT in health is multifaceted, complex and challenging and requires users and service providers to have advanced knowledge, experience, skills and other attributes for it to function effectively in health care. The literature also identifies that nursing has not traditionally embraced IT for various reasons but, also identifies why it should.

The positive and negative attributes of IT in health care have been identified along with the factors that can assist and impede the introduction of IT to work in health care.

Previous studies identified in the literature have suggested how IT in health influences care, influences staff and service users and yielded gaps in current research that includes the area of mental health. The use of IT in mental health is required to review services that are underpinned by best practice and will assist in delivering a quality service. This

is where this literature review has identified a gap in current research. This current study will address this gap in research by conducting a survey of mental health nursing staff's view of IT in health care, and if the introduction of a new mental health information system will have any impact on how they carry out their work. If successful, this exploratory study could possibly provide a baseline for further research in Ireland. The methods used to undertake this are described in the next chapter.

## **Chapter Three**



### **3 RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This study explored how the implementation of an electronic mental health information system (WISDOM) could improve the data availability for the management of a mental health service in Ireland, and how it impacted on the delivery of care. It also examined mental health nurses attitudes towards IT and their perceptions of how WISDOM will impact on work. Given that the existing literature base was insufficient to guide the formulation of specific hypothesis, an exploratory quantitative approach was used, utilising a variable based research design survey. This chapter describes, clarifies and justifies the research methodology employed to address the research question(s), incorporating study design, instrument employed, sample, data collection process and data analysis.

#### **3.2 Research Aims and Objectives**

According to Bowling (2002), one of the primary tasks in designing a research project is to describe the research aims and the more detailed objectives of the study. Bowling (2002:138) describes the research objectives as “the operational tasks necessary for the accomplishment of the aim”. Quantitative research involves a linear progression of task, planned in advance, for the purpose of achieving the overall aims and objectives of the study. The aim of this research study was threefold:

1. To investigate if the introduction of an electronic mental health information system (WISDOM) could improve the data availability for the management of a mental health service in Ireland?
2. To examine how the introduction of such a system could impact on the delivery of care?
3. To examine mental health nurses attitudes towards IT.

The specific objectives of this study were:

1. To explore the perceptions of mental health nurses regarding whether the introduction of a mental health information system (WISDOM) could assist in the delivery of a mental health service and impact on patient care and the service user?

2. To explore the perceptions of mental health nurses on how the work performance of nursing staff is improved or not improved by the introduction of WISDOM and the accompanying electronic patient record.?
3. More generally, to examine the attitudes of mental health nurses towards IT?

These objectives lead the researcher to formulate the following research questions;

1. How do mental health nurses access IT at work and what if any are the advantages and disadvantages of using IT in the mental health setting?
2. What are the attitudes of mental health nurses towards IT and what is the ability of mental health nurses to use IT in mental health care? For example, does it impact on their work performance?
3. What are the factors that can assist or impede the introduction of an IT system into mental health?
4. What effects (positive or negative) will the introduction of WISDOM have on the delivery of mental health care?

### **3.3 Research Design**

Research design refers to the researchers overall plan for answering the research question, with the aim of achieving an intended goal (Parahoo 2006).

Because of a relatively limited base of research on mental health nurse attitudes towards IT and the lack of any Irish data, a quantitative approach, utilising an exploratory study was employed. By utilising this approach, the researcher hoped to uncover the attitudes of mental health nurses towards IT and to answer the research questions mentioned previously. Research is a “systematic inquiry that uses disciplined methods to answer questions or solve problems to develop refine and expand a body of knowledge” (Polit & Beck, 2004:3). Quantitative research is characterised with the collection and analysis of numeric information, traditionally conducted within a scientific methodology with findings based on empirical evidence (Polit & Beck, 2004). The quantitative approach involves the use of data collection methods such as questionnaires, structured interviews and survey studies (Parahoo, 2006).

Taking cognisance of the overall aim and the specific objectives of this study, an anonymous, self-administered questionnaire was developed to facilitate the collection of data from the chosen research sample.

### **3.4 Sample Selection**

A sample is a subset of the defined population who are selected to participate in the study and is intended to reflect all the characteristics of that population (Gerrish & Lacey, 2006). The first step in selecting a sample is to identify and define the population that will be under investigation. A population is the target group that are theoretically available to whom you expect to generalise your results and can be identical to the total population (Wood & Ross-Kerr, 2006). For the purpose of this study, the researcher chose a target population of all registered, qualified mental health nurses, both permanent and temporary, working in the Donegal Mental Health Service (DMHS). The DMHS is part of the HSE West which is part of a larger organisation called the HSE.

According to Gerrish and Lacey (2006), the generally accepted level of response to aim for is 80% but this can vary among health professionals. A response rate of 53% from mental health practitioners was identified by Skidmore, Warne and Stark (2004). The researcher was hoping for a sample that would be representative of the target population of over 53%.

The eligibility criteria for this study were:

#### **3.4.1 Inclusion Criteria**

All registered mental health nurses, both permanent and temporary working in the DMHS, both hospital and community based. This provided an accessible population of 210 nurses (n=210). Taking the study design into consideration, the researcher decided to survey 200 (n=200) registered mental health nurses from the accessible population, (10 nurses were involved in the piloting of the survey instrument so were not included in the actual study) therefore no sample was drawn.

### **3.4.2 Exclusion Criteria**

All other health professionals who were not registered mental health nurses and student nurses who were registered as student nurses with An Bord Altranais.

### **3.5 Instrument Design: Questionnaire**

Because the aim of this study was to investigate if the implementation of an electronic mental health information system (WISDOM) could improve the data availability for the management of a mental health service in Ireland, and to examine mental health nurses attitudes towards IT, a survey appeared to be the most appropriate choice for the data gathering. LoBiondo-Wood and Haber (2006:240) define survey studies as; “descriptive, exploratory, or comparative studies that collect detailed descriptions of existing variables and use the data to justify and assess current conditions and practices or to make more plans for improving health care practices”. Survey research is highly flexible, covers a wide range of topics and is capable of harvesting data from a relatively large representative sample (Parahoo, 2006) while maintaining anonymity. As such, surveys can obtain information about the prevalence, distribution and interrelations within a population (Polit & Beck, 2004). The instrument developed was a descriptive survey developed to describe a certain phenomena in the population of interest (Bowling, 2002). According to Bowling (2002:196) “generated hypotheses can, if appropriate, be tested in experimental or analytical studies”, therefore a survey seemed an appropriate tool to use.

A questionnaire was the tool used for gathering the data (see appendix 5). The questionnaire was developed based on an extensive review of the literature. The use of tested measurement scales is strongly recommended in most research design texts (Bowling, 2002; Cresswell, 2003; Parahoo, 2006; Polit & Beck, 2004; Wood & Ross-Kerr, 2006). Having reviewed the literature, the researcher noted that there were very few tools (measurement scales) available and none were designed with Mental Health and the Irish context in mind. One questionnaire that was helpful was a questionnaire that was used in an Australia study on nurses’ confidence and experience in using information technology (Hegney et al., 2007). The aims and objectives of this study in conjunction with the researchers experience from working in the area of mental health, discussions with colleagues, research supervisor, research lecturer and an in-depth

examination of the relevant literature along with the main topics of interest, formed the basis of the questions to be used in the questionnaire. Taking into account the cultural context which can have a bearing on attitudes and perceptions, the researcher decided to compile a questionnaire based on topics of interest from the literature and the researchers own critical thinking on the matter. The main topics of interest were:

- Access to technology at work and ability to use IT at work;
- Attitudes towards the use of IT at work;
- Advantages and disadvantages of using IT;
- Views on the introduction and factors that assist or impede the introduction of new IT.

A first draft of the instrument was produced and discussed with the researcher's supervisor and research lecturer. Changes were made to the questionnaire and a second draft was produced. This completed draft (appendix 5) consisted of 31 questions in 5 sections consisting of closed and open ended questions, 5 and 6 point scale questions and 5 point Likert-type scale questions were utilised. To allow participants to express their views, a comment section/question was attached. This draft was then used for piloting and assessing the reliability and validity of the instrument.

### **3.5.1 Pilot Study**

A pilot study is a "small scale version or trial run of the major study" (Polit & Beck, 2004:51). The pilot study for this research project was conducted among 10 mental health nurses from the identified research site who conformed to the eligibility criterion of the parent study. These nurses were chosen at random and their data was excluded from the study proper. This reduced the accessible target population to 200 ( $n = 200$ ) from a possible target of 210 ( $n=210$ ). The purpose of the study was to test the reliability and validity of the pilot questionnaire with the main focus on the layout of the questionnaire, the question order, the wording of the questions and the relevance and clarity of each question. The pilot questionnaire was distributed personally to 10 ( $n=10$ ) mental health nurses along with a feedback form, and 9 responses were received back giving a response rate of 90%.

All respondents made positive comments regarding the readability of the pilot questionnaire (e.g. it took an average of only 15 minutes to complete). However, while the questions were not modified, feedback highlighted the need to make some minor changes to the layout of the pilot questionnaire. The final draft questionnaire (appendix 5) was then employed in the study proper.

### **3.5.2 Reliability**

An instrument's reliability is the "consistency with which it measures the target attribute and how accurate the measure is" (Polit & Beck, 2004:416). This is the stability of an instrument where the extent to which similar results is obtained on two separate administrations (Polit & Beck, 2004). As this study did not involve an observational instrument (so stability will not be required to be measured for different raters/facilitators) inter-rater reliability was not deemed by the researcher to be an appropriate test of reliability.

### **3.5.3 Validity**

Validity is the "degree to which an instrument measures what it is supposed to measure" (Polit & Beck, 2004:422). Face validity refers to whether the instrument looks as though it is measuring the appropriate construct and content validity is concerned to the degree to which "an instrument has an appropriate sample of items for the construct being measured" (Polit & Beck, 2004:423). Ideally, the researcher would have used participant validation (i.e. having nurses provide feedback on findings) to ensure inter-subjectivity (which is a crucial criterion for research validity) (Pope & Mays, 2000). This could have taken the format of asking to what extent the overall reported findings resonated with their own experience.

## **3.6 Data Collection**

Quantitative data in this study was collected via self-administered anonymous written questionnaires distributed to registered mental health nurses in the DMHS. The process for gaining access to this target population was negotiated with the Director of Nursing through a letter requesting this and briefly outlining the nature of the study (i.e. what

was being requested of participants) (see appendix 6). Approval from the Director of Nursing was received prior to the distribution of the questionnaires. The questionnaires were distributed by the research officer within the DMHS over a two week period. A further reminder (see appendix 9) requesting the completion of the questionnaire was sent out two weeks later with another two weeks being allowed for respondents to return the questionnaire to the researcher. Questionnaires were returned in a stamped address envelope that was included with the questionnaire. Each questionnaire was also accompanied by:

1. A cover letter (see appendix 7) inviting the respondent to participate in the study and providing the respondent with some general information on the study, stating that participation was voluntary and the contact details of the researcher.
2. A participant information leaflet (see appendix 8) further outlining the study in more detail, methods of data collection along with the contact details of the researcher and the researcher's supervisor. The participant information leaflet also gave information stating that the questionnaire is anonymous and no responses can be traced back to named individuals (anonymity of participants was maintained by numerically coding the questionnaires on return to the researcher).

### **3.7 Data Analysis**

According to Polit and Beck (2004:716) data analysis is “the systematic organisation and synthesis of research data, and the testing of research hypotheses using the data”. The goal of data analysis is to provide “answers to the research questions” (Wood & Ross-Kerr, 2006:243).

The quantitative data gathered from the questionnaire was analysed utilising the Statistical Package for Social Sciences (SPSS) Version 16 (SPSS Corporation 2008). SPSS is a statistical package which facilitates the organisation and summary of the response data into frequency tables. Frequencies and descriptive statistics were then used to summarise the data.

The data collected in this study was managed in the following way. First the process required the answers from the questionnaire (raw data) to be converted to codes and this

was done through the use of a code book (see appendix 12). Second, a variable dataset was established on SPSS and the raw data was then entered item by item onto a data file and verified by checking distributions and ranges. Third, some qualitative data was also yielded from the questionnaires (from open ended questions) along with valuable insights from respondents in the additional comments section, requiring a thematic analysis. This was accomplished through identifying themes between the sources of information and the variables (Parahoo, 2006). These themes were then ranked in order of importance as they appeared in responses by the participants

See appendix 11 for summary of data collection and analysis.

### **3.8 Ethical Considerations**

When people agree to participate in research, care must be taken to ensure that the rights of those humans are protected (LoBiondo-Wood & Haber, 2006; Polit & Beck, 2004). During the research process, every effort was made to protect the rights of participants in this study. This research process was guided by the principles of beneficence, respect for human dignity and justice (Polit & Beck, 2004). Based on the principle of respect, anonymity exists when the subject's identity cannot be linked (even by the researcher), to his or her individual responses (American Nurses Association, 1985). The use of a questionnaire will assure confidentiality of responses and anonymise individual respondents (Gerrish & Lacey, 2006). A self administered questionnaire was chosen to gather data for this study as one of the advantages of this type of questionnaire is it keeps respondents anonymous (Parahoo, 2006). Respondents can complete it on their own and in their own time. Ethical approval was sought from the Trinity College Faculty Ethics Committee and local ethical approval was also sought from Letterkenny General Hospital. Given the nature of the proposed study and since there was no direct involvement of patients or involvement of invasive treatments, ethical approval was received to conduct the proposed research study.

The survey instrument for this study, the questionnaire was distributed to potential participants by the research officer in the DMHS. Accompanying the questionnaire was a cover letter (see appendix 7) inviting the potential participant to participate in the study. Also accompanying the questionnaire was a participant information leaflet (see



appendix 8) giving details and information of the study. The participant information leaflet also gave information stating that the questionnaire was anonymous and no responses could be traced back to named individuals (anonymity of participants was maintained by numerically coding the questionnaires). Potential participants were also informed that participation in this study was entirely voluntary and participants were free to exit the study at any time without the risk of penalty being imposed by not completing the questionnaire.

Potential participants were also informed that by completing the questionnaire and returning it to the researcher in the enclosed stamped addressed envelope, they will have implied that consent had been given to participate in this study. All information received will be treated with the utmost confidence and only the researcher and his supervisor (who is appointed by Trinity College and not employed in the DMHS) will have access to raw data. The participant information leaflet also informed the potential participant that on completion of the study, completed questionnaires will be retained for five years and securely stored in a locked cabinet (hard copies) or in a password protected computer (soft copies) for five years as specified by the Trinity College Faculty Ethics Committee and then destroyed. Only anonymous findings of this study will be reported in the thesis or in future publications.

### **3.9 Summary**

Given the paucity of existing research, this chapter has described the methods used to achieve the aims of this study. This pre-dominantly quantitative exploratory study involved piloting a self-administered questionnaire among 10 mental health nurses. Informed by the preliminary findings of this pilot study, a final draft questionnaire was distributed to 200 (n=200) mental health nurses in the DMHS. The raw data from the returned questionnaires was then inputted into SPSS Version 16 with the results summarised in the form of frequencies and descriptive statistics. Some qualitative data was also produced through thematic analysis. At all times, validity issues and ethical issues were appropriately addressed. The following chapter will present the findings from the study.

## **Chapter Four**

## **4 RESEARCH FINDINGS**

### **4.1 Introduction**

The purpose of this chapter is to present the findings of this study which are based on the research objectives and questions which were identified in the previous chapter. The response rate will be discussed along with the data to be analysed from the returned questionnaires which was mainly quantitative but does include some qualitative data. The data will be presented in sections as to reflect the layout of the survey instrument (questionnaire). All data is presented in accordance with the specific objectives and questions of the study which were to examine:

1. What are the attitudes of mental health nurses towards IT and its use in health care?
2. What if any are the advantages and disadvantages of using IT in the mental health setting?
3. What are the factors that can assist or impede the introduction of an IT system into mental health?
4. Does the introduction of WISDOM have any effects (positive or negative) on the delivery of mental health care?

### **4.2 Response Rate**

The number of questionnaires distributed for the purpose of the survey to registered mental health nurses was 200. The number of completed questionnaires returned was 125. This gave a response rate of 62.5% and all of these were included in the analysis (n=125). When analysing the data, it should be noted that some participants will not have filled in every section of the questionnaire or failed to complete certain sections which has meant that the response rate was not n=125 for every question as there were some missing variables.

**Table 4.1 Questionnaire response rate**

| <b>Number of Questionnaires Distributed</b> | <b>Number of Completed Questionnaires Returned</b> | <b>Percentage Return</b> |
|---|--|--------------------------|
| 200   | 125  | 62.5%                    |

### **4.3 Section A: Access to Technology at Work**

The first section of the questionnaire examined participants' access to IT (computer and internet) and also examined if participants' used these items as part of their regular duties at work. This section contained 8 questions.

#### **4.3.1 Do you have access to a computer at work?**

Participants were asked if they had access to a computer where they worked. Ninety five per cent (n=117) of participants replied that they did have access to a computer at work with 5% (n=6) recording that they did not.

#### **4.3.2 Do you use a computer as part of your regular duties?**

Participants were asked if they used a computer as part of their regular duties. Fifty per cent (n=62) replied that they did and 50% (n=62) replied that they did not.

#### **4.3.3 Does your computer have access to the internet?**

Participants were asked if the computer that they used had access to the internet. Eighty two per cent (n=98) replied that it did, 13% (n=16) replied that it did not and 4% (n=5) of participants did not know.

#### **4.3.4 Do you access the internet as part of your regular duties?**

Thirty six per cent (n=44) of participants said yes they did access the internet for work purposes and 64% (n=79) replied that they did not access the internet for work purposes.

#### **4.3.5 Do you have a personal email address at work?**

Forty one per cent (n=51) replied that they did have a personal email address at work with 51% (n=72) replying that they did not. One per cent (n=2) said that they had one but did not use it.

#### 4.3.6 Do you use email as part of your regular duties?

Thirty one per cent (n=39) of participants replied that they did use email for work purposes with 69% (n=86) replying that they did not use email.

These responses can be summarised in the following table 4.2

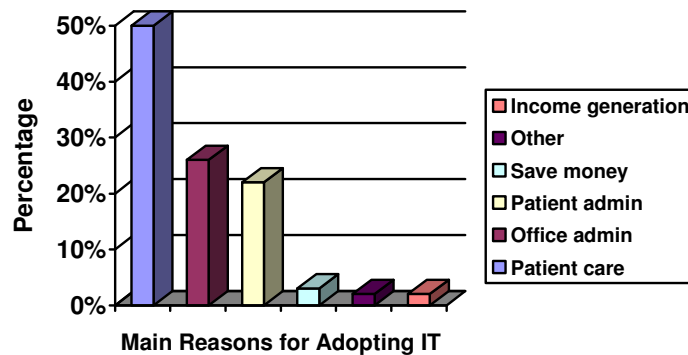
**Table 4.2 Access to technology at work**

|  | Percentage of respondents |    |            |
|--|---------------------------|----|------------|
|  | Yes                       | No | Don't know |
| Do you have access to a computer at work?                  | 95                        | 5  | 0          |
| Do you use a computer as part of your regular duties?      | 50                        | 50 | 0          |
| Does your computer have access to the internet?            | 82                        | 13 | 4          |
| Do you access the internet as part of your regular duties? | 36                        | 64 | 0          |
| Do you have a personal e-mail address at work?             | 41                        | 58 | 1          |
| Do you use e-mail as part of your regular duties?          | 31                        | 69 | -          |

#### 4.3.7 Rank what you believe is the main reason for the adoption of IT in your workplace.

In this question, participants were asked to rank the response that they felt was the most important reason for the adoption of IT in their workplace. The most popular response for adopting IT (figure 4.1) was 50% (n=63) for patient/client care, 26% (n=32) replied office administration, 22% (n=27) replied patient/client admin, 3% (n=4) replied saving money, 2% (n=3) replied other and finally 2% (n=2) replied income generation. It should be noted that for this question some participants gave a ranking of one (most important) to more than one response giving a total of 131 (n=131) ranks of 1 (most important) to this particular question.

**Figure 4.1 Main Reasons for Adopting IT**



#### **4.3.8 Are you aware that a new electronic mental health information system called WISDOM is being introduced?**

The final question in this section asked participants if they were aware of the new WISDOM system. Ninety eight point five per cent (n=122) of participants responded that they were with 1.5% (n=2) responding that they were not aware of the new system.

### **4.4 Section B: Ability to use IT at Work**

The second section of the questionnaire examined participants' ability and confidence in using IT, what they might use a computer for while working and what restricts their use of a computer in the workplace.

#### **4.4.1 What is your level of confidence in using IT equipment /software?**

Question 9 asked participants how confident they were at using various IT equipment and software. As per table 4.3, they answered as follows: (for more detailed results see appendix 12).

**Table 4.3 Level of confidence in using IT equipment/software**

| Equipment or software used | Percentage of respondents |           |                    |                    |                      |               |
|----------------------------|---------------------------|-----------|--------------------|--------------------|----------------------|---------------|
|                            | Very confident            | Confident | Average confidence | A little confident | Not at all confident | Never used/NA |
| Computer                   | 31                        | 31        | 18                 | 9                  | 9                    | 2             |
| Mouse                      | 51                        | 24        | 11                 | 7                  | 5                    | 2             |
| Keyboard                   | 42                        | 25        | 12                 | 12                 | 7                    | 2             |
| Touch screen               | 29                        | 16        | 17                 | 16                 | 10                   | 12            |
| Data projector             | 10                        | 12        | 16                 | 15                 | 27                   | 20            |
| CD/DVD ROM                 | 22                        | 24        | 20                 | 7                  | 12                   | 15            |
| USB memory sticks          | 32                        | 16        | 13                 | 11                 | 12                   | 16            |
| Word processing            | 30                        | 26        | 10                 | 7                  | 13                   | 14            |
| Spreadsheets               | 9                         | 15        | 20                 | 16                 | 23                   | 17            |
| Database                   | 9                         | 16        | 24                 | 15                 | 18                   | 18            |
| Reference tools            | 5                         | 8         | 19                 | 21                 | 22                   | 25            |
| EBP resources              | 16                        | 18        | 22                 | 11                 | 15                   | 18            |
| E-mail                     | 23                        | 15        | 15                 | 12                 | 17                   | 18            |
| SPSS                       | 6                         | 8         | 11                 | 13                 | 31                   | 31            |
| Windows                    | 21                        | 23        | 13                 | 18                 | 15                   | 10            |
| Apple Mac                  | 5                         | 5         | 12                 | 16                 | 27                   | 35            |
| Internet                   | 40                        | 28        | 11                 | 5                  | 8                    | 8             |
| Intranet                   | 23                        | 16        | 15                 | 12                 | 15                   | 19            |

#### **4.4.2 How often do you use a computer at work?**

Question 10 asked participants how often they used a computer for work related purposes. Table 4.4 profiled their responses: (refer to appendix 13 for more detailed results)

**Table 4.4 How often do you use a computer for work related purposes?**

| <b>Work related purposes</b>    | <b>Percentage of respondents</b> |               |                     |                   |               |           |
|---------------------------------|----------------------------------|---------------|---------------------|-------------------|---------------|-----------|
|                                 | <b>Never</b>                     | <b>Rarely</b> | <b>Occasionally</b> | <b>Frequently</b> | <b>Always</b> | <b>NA</b> |
| Accessing patient records       | 61                               | 12            | 9                   | 9                 | 1             | 8         |
| Appt scheduling                 | 78                               | 6             | 3                   | 1                 | 3             | 9         |
| Bed management                  | 78                               | 5             | 1                   | 3                 | 1             | 12        |
| Patient/client assessment       | 70                               | 9             | 5                   | 3                 | 4             | 9         |
| Clinical documentation          | 83                               | 2             | 1                   | 1                 | 2             | 11        |
| Medication mgt                  | 82                               | 2             | 2                   | 1                 | 2             | 11        |
| Lab results                     | 47                               | 6             | 14                  | 14                | 11            | 7         |
| Ordering tests                  | 80                               | 3             | 2                   | 1                 | 1             | 13        |
| Accessing policies              | 54                               | 8             | 9                   | 17                | 7             | 5         |
| Accessing EBP                   | 38                               | 9             | 20                  | 18                | 9             | 6         |
| Admin reporting                 | 68                               | 6             | 3                   | 7                 | 6             | 10        |
| Staff mgt/ rostering            | 67                               | 2             | 2                   | 5                 | 10            | 14        |
| Financial/payroll               | 77                               | 2             | 2                   | 1                 | 1             | 17        |
| Developing policies             | 64                               | 5             | 6                   | 8                 | 6             | 11        |
| Dealing with patient complaints | 74                               | 4             | 5                   | 2                 | 2             | 13        |
| Recruitment                     | 69                               | 2             | 6                   | 2                 | 3             | 18        |
| Continuing education            | 26                               | 10            | 25                  | 20                | 13            | 6         |
| Communication with other orgs   | 43                               | 16            | 14                  | 13                | 7             | 7         |
| Accreditation                   | 64                               | 14            | 7                   | 2                 | 2             | 12        |
| Other                           | 65                               | 0             | 0                   | 2                 | 5             | 28        |

#### **4.4.3 Restriction in the use of a Computer**

Question 11 asked participants to identify items from a list and rate if they restricted their use of a computer in the workplace. See table 4.5 for participant responses. For more detailed results see appendix 14.



**Table 4.5 Items that restrict your use of a computer**

| Items that restrict use of a computer | Percentage of respondents |        |           |       |        |
|---------------------------------------|---------------------------|--------|-----------|-------|--------|
|                                       | Never                     | Rarely | Sometimes | Often | Always |
| Not enough computers                  | 44                        | 14     | 18        | 11    | 13     |
| Location of computers                 | 45                        | 13     | 18        | 14    | 10     |
| It takes too long to log on           | 44                        | 15     | 21        | 14    | 7      |
| Unreliable connection to the network  | 45                        | 26     | 20        | 7     | 2      |
| Response time of computer             | 33                        | 21     | 24        | 16    | 6      |
| Too many other work demands           | 11                        | 7      | 29        | 33    | 20     |
| My age                                | 78                        | 6      | 9         | 5     | 2      |
| My IT knowledge                       | 43                        | 14     | 22        | 11    | 10     |
| My confidence in its use              | 45                        | 14     | 20        | 12    | 9      |
| Lack of IT support                    | 40                        | 16     | 22        | 13    | 9      |
| Lack of management encouragement      | 41                        | 17     | 23        | 13    | 6      |
| No interest                           | 53                        | 12     | 17        | 8     | 10     |
| Health and safety concerns            | 87                        | 8      | 3         | 0     | 2      |
| Other                                 | 50                        | 0      | 0         | 0     | 50     |

## **4.5 Section C: Attitudes towards the use of IT at Work**

The third section of the questionnaire, questions 12 to 20 examined mental health nurses attitudes towards IT and the new WISDOM system. Participants answered (table 4.6 with the following: For more detailed results see appendix 15.

**Table 4.6 Attitudes towards the use of IT at work**

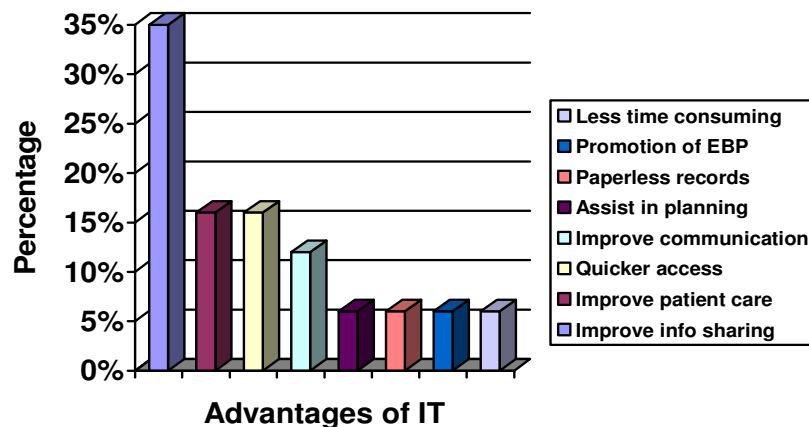
|   | Percentage of respondents |       |         |          |                   |
|---|---------------------------|-------|---------|----------|-------------------|
|   | Strongly agree            | Agree | Neutral | Disagree | Strongly disagree |
| I feel that computers and IT in general contribute to my professional role as a mental health nurse | 23                        | 31.5  | 31.5    | 10       | 4                 |
| I avoid using computers whenever I can  | 6                         | 10    | 15      | 34       | 35                |
| Learning about computers is essential for nurses working in today's health service                  | 39                        | 47    | 11      | 2        | 1                 |
| I have been well informed about the introduction of the WISDOM system                               | 18                        | 39    | 15      | 13       | 15                |
| I was regularly given updates about the progress of the WISDOM project                              | 11                        | 15    | 20      | 35       | 19                |
| I have received adequate training in order to operate the WISDOM system competently                 | 11                        | 20    | 17      | 25       | 27                |
| The WISDOM system will have a positive impact on the delivery of the mental health service          | 20                        | 26    | 47      | 6        | 1                 |
| The WISDOM system will improve and add to the delivery of patient care                              | 22                        | 26    | 41      | 10       | 1                 |
| I believe that my level of computer literacy is restricting my career development                   | 5                         | 11    | 14      | 45       | 25                |

Questions 21 -26 involved some qualitative analysis. This was accomplished through identifying themes between the sources of information and the variables (Parahoo, 2006). The responses were sorted, deciphered and interpreted to identify a common response or theme among the respondents in an open coding process (Parahoo, 2006). As most respondents gave more than one response to each of the listed questions, some (total) response rates exceeded 100%.

#### 4.5.1 What are the advantages of using IT in the mental health setting?

Participants replied with the following: Improve info sharing/availability: 35% (n=44). Improve patient/client care/treatment: 16% (n=20). Easier/quicker access to client details/test or lab results: 16% (n=20). Improve communication: 12% (n=15). Assist in the planning process: 6% (n=8). Paperless records/less storage: 6% (n=8). Promotion of EBP: 6% (n=7). Less time consuming/avoids duplication: 6% (n=7) and 10% (n=12).

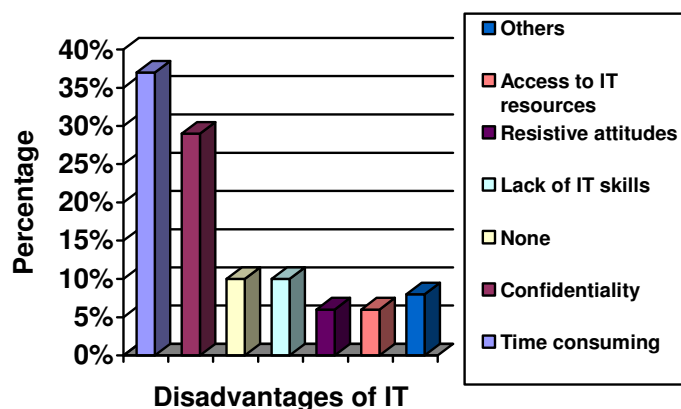
Figure 4.2 Advantages of IT in the Mental Health Setting



#### 4.5.2 What are the disadvantages of using IT in the mental health setting?

Participants replied with the following: Time factor/time consuming/less time with patients: 37% (n=46), Confidentiality issues/unsafe storage or access of data: 29% (n=36). None: 10% (n=13). Lack of IT skills/training: 10% (n=12). Resistive staff attitudes: 6% (n=8). Access to/lack of IT resources/computers: 6% (n=8) and others 8% (n=10).

**Figure 4.3 Disadvantages of IT in the Mental Health Setting**



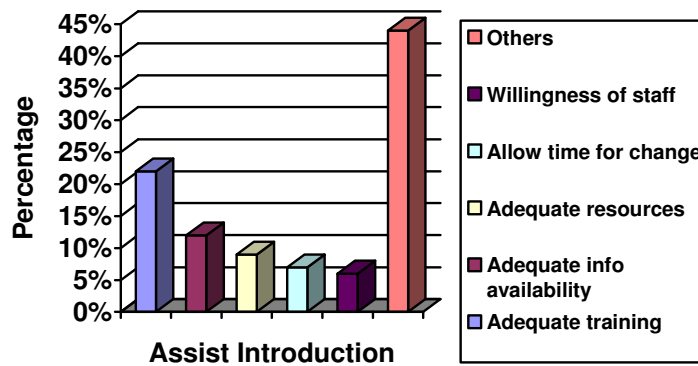
## **4.6 Section D: Views on the introduction of WISDOM**

The three questions in this section looked at mental health nurses attitudes specifically towards the new WISDOM system.

### **4.6.1 What are the factors that assist or impede the introduction of new health technology such as WISDOM?**

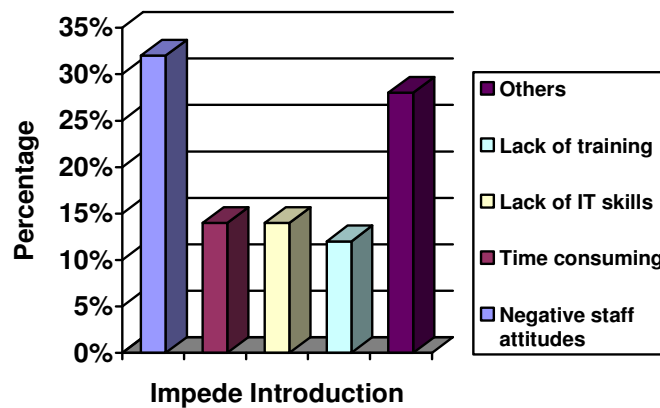
Participants replied that the following assist with the introduction of new technology: Adequate training: 22% (n=28). Adequate information availability and consultation: 12% (n=15). Adequate resources: 9% (n=11). Allow staff time for change and to become confident and competent with new technology: 7% (n=9). Willingness of staff to use new technology and change: 6% (n=7) and others 44% (n=56).

**Figure 4.4 Factors that Assist the Introduction of New Health Technology**



Participants replied that the following impede the introduction of new technology: Staff resistance/negative staff attitudes: 32% (n=40). Time consuming: 14% (n=18). Lack of IT skills/competence: 14% (n=18). Lack of training/education/knowledge: 12% (n=15) and others 28% (n=35).

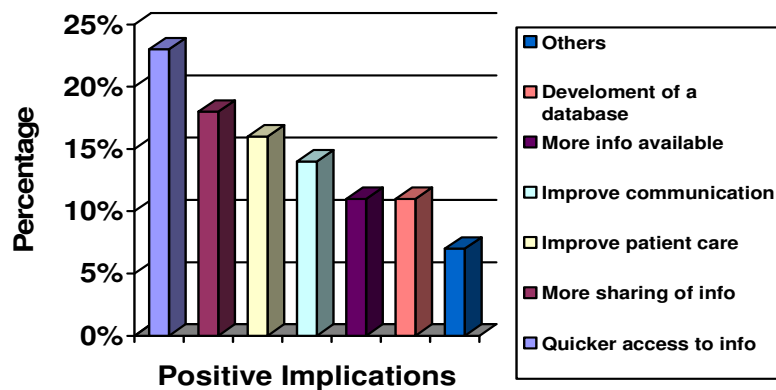
**Figure 4.5 Factors that Impede the Introduction of New Health Technology**



#### 4.6.2 What are the positive implications for the WISDOM system?

Participants replied that the following are the positive implications for the WISDOM system: Easier/quicker access to information: 23% (n=29). More sharing of information: 18% (n=22). Improve patient care/experience of the DMHS: 16% (n=20). Improve communication: 14% (n=17). More info available to all team members: 11% (n=14). Development of a database: 11% (n=14) and others 7% (n=8).

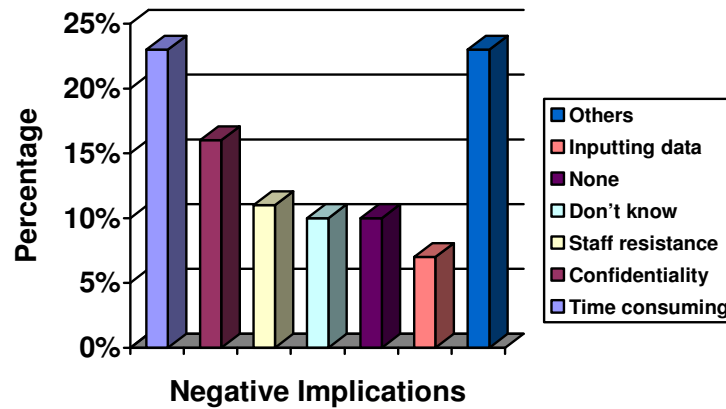
**Figure 4.6 Positive Implications of Wisdom**



#### 4.6.3 What are the negative implications for the WISDOM system?

Participants replied that the following are the negative implications for the WISDOM system: Time consuming/takes up valuable time: 23% (n=29). Lack of confidentiality 16% (n=20). Staff resistance/ commitment and reluctance to embrace system 11% (n=14). Don't know/no training yet 10% (n=13). None 10% (n=12). Increase in time inputting data manually 7% (n=9) and others 23% (n=29).

**Figure 4.7 Negative Implications of Wisdom**



#### **4.6.4 Other comments**

Question 26 allowed for participants to provide any additional comments or suggestions that they felt may contribute to the study. Seventeen point five per cent (N=22) answered this question. The following are some of the comments that participants provided.

- *WISDOM is an essential requirement for healthcare.*
- *Is the data relevant to the HRB or the Mental Health Service? (Three responses).*
- *Lack of communication between management and frontline staff. (Two responses).*
- *Use of passwords is inadequate. (Two responses).*
- *You will not have an IT system that is used properly if all members/ professionals are not willing to use it as part of their daily work.*
- *An IT system is only as good as the people using it. (Three responses)*
- *If a CPN visits 9 – 10 patients daily, it will take 50 – 60 minutes to put data onto WISDOM on top of their usual documentation. This is time consuming and one hour less for patient care daily.*
- *Some units are very busy due to workload. Therefore this additional duty will cause stress to staff.*

- *I would have concerns over the evolution of a PC Nurse, instead of concentrating on the important task of nursing practice.*
- *Patient care neglected in favour of office tasks/duties.*
- *In general WISDOM will be welcomed.*
- *It will encourage information sharing.*
- *WISDOM will provide valuable information on how community mental health facilities are utilised.*
- *Not enough promotion of the IT model in the Donegal Mental Health Service.*  
(Two responses).

## **4.7 Section E: Respondents' General Attributes**

The final section in the questionnaire contained five questions which were used for the purpose of creating appropriate control variables for interpreting the data gathered in the questionnaire.

### **4.7.1 Are you a registered mental health nurse employed in the Donegal Mental Health Service?**

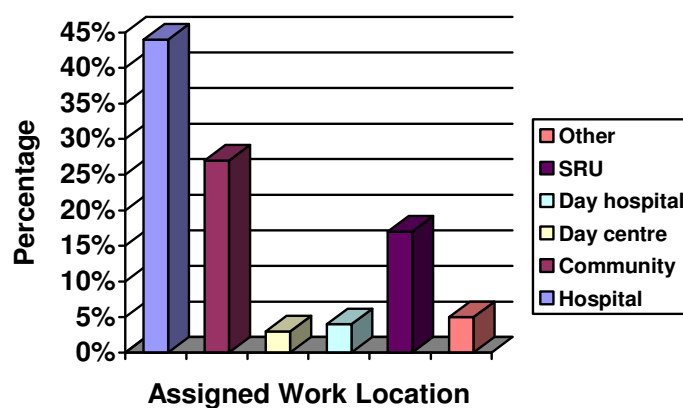
Of the 126 returned questionnaires, 117 participants completed this question of which all indicated that they were registered mental health nurses. This was specified in the inclusion criteria for participation in the study. Eight participants did not answer this question. It should be noted that questionnaires were only given to registered nurses and to no other staff members working in the service.

### **4.7.2 What is your assigned work location?**

Forty four per cent (n=50) worked in the hospital (acute admission unit and continuing care wards), 27% (n=32) worked in a community setting, 3% (n=3) worked in a day centre, 45% (n=5) worked in a day hospital, 17% (n=20) worked in a supervised residential unit (SRU) in the community and 5% (n=6) responded that they worked in another location.



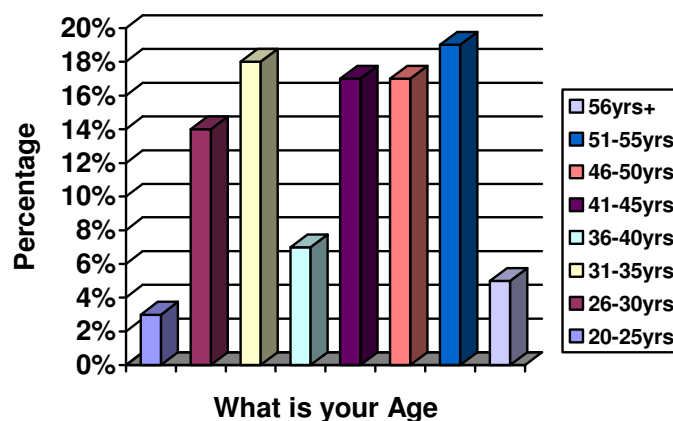
**Figure 4.8 What is Your Assigned Work Location?**



#### **4.7.3 What is your age?**

Three per cent (n=3) of participants were aged between (20 – 25yrs), 14% (n=16) were aged between (26 – 30yrs), 18% (n=21) were aged between (31 – 35yrs), 7% (n=8) were aged between (36 – 40yrs), 17% (n=19) were aged between (41 – 45yrs), 17% (n=20) were aged between (46 – 50yrs), 19% (n=22) were aged between (51 – 55yrs) and 5% (n=6) were aged (56yrs) or over.

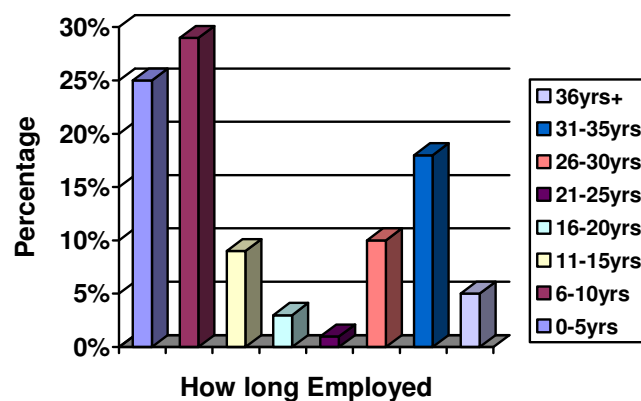
**Figure 4.9 What is Your Age?**



#### 4.7.4 How long have you been employed by the Donegal Mental Health Service?

Twenty five per cent (n=29) were employed between (0 – 5yrs), 29% (n=33) between (6 – 10yrs), 9% (n=10) between (11 – 15yrs), 3% (n=4) between (16 – 20yrs), 1% (n=1) between (21 – 25yrs), 10% (n=11) between (26 – 30yrs), 18% (n=21) between (31 and 35yrs) and 5% (n=6) had been employed for (36yrs) or more.

Figure 4.10 How Long have you been Employed in the DMHS?



#### 4.7.5 Are you currently in a management position (CNM (Clinical Nurse Manager) II or above)?

Twenty eight per cent (n=33) of participants replied that they were in a management position and 72% (n=85) were not in a management position.

## **Chapter Five**

## **5 DISCUSSION OF FINDINGS**

### **5.1 Introduction**

The previous chapter presented this study's findings regarding whether the implementation of an electronic mental health information system (WISDOM) could improve the data availability for the management of a mental health service in Ireland. It also presented mental health nurses' perceptions as to how this IT impacted on the delivery of care and profiled their attitudes towards IT. This chapter will discuss the main findings of the research study in the context of previous research, to determine the extent to which this Irish exploratory study compares to studies that have been conducted previously.

The overall response rate was 62.5% (n=125) which suggested that this topic was one which was important to mental health nurses. The overall results of this study demonstrated how mental health nurses use IT, what they thought of IT and how IT might benefit a mental health service.

In excess of 17% (N=22) of respondents submitted comments in free text at the end of the survey. These comments ranged from one or two sentences to several paragraphs of text. These comments will be included in the relevant sections and will appear in *italics*.

### **5.2 Access to Technology at Work**

The first section of the questionnaire examined mental health nurses access to technology while at work and consisted of 8 questions.

About 95% (n=117) of nurses replied that they did have access to a computer at work but only 50% (n=62) of nurses actually used a computer as part of their regular duties/for work purposes. Ninety seven per cent (n= 32) of nurses in a management position (Clinical Nurse Manager Two (CNM II) or above) replied that they did have access to a computer. These findings imply that more senior nurses in management positions have a greater need to use computers for work purposes, as was also found in another study that indicated senior nurses appeared to use computers more for work purposes than their junior colleagues (Hegney et al., 2007).

Eighty two per cent (n=98) of nurses indicated that they did have access to the internet at work, and if the 'don't knows' are included this rises to 86% (n=103). However, only 36% (n=44) of nurses accessed the internet as part of their regular duties indicates a poor usage of this IT application. However, 73% (n=24) of management did access the internet.

Forty one per cent (n=51) of nurses replied that they did have a personal email address at work, with 31% (n=39) using email as part of their regular duties. This figure increases to nearly 78% (n=25) for nurses who are in a management position.

The results about the main reason for the adoption of IT in the workplace indicated that mental health nurses considered patient/client care as their main reason for adoption, with 50% (n=63) indicating that respondents had a positive attitude to the use of IT in the clinical setting. Office administration (26%; n=32) and patient/client administration (22%; n=27) were ranked as the second and third reason and, participants also indicated that these were also drivers for the introduction of IT into the workplace.

And finally, 98% (n=122) of nurses were aware that a new electronic mental health information system (WISDOM) was being introduced to the service. This would imply that a thorough information programme had been successfully employed to introduce WISDOM and had reached nearly all nurses within the service.

### **5.3 Ability to use IT at Work**

This findings in this section highlighted mental health nurses ability and confidence in using IT, what they used a computer for and what restricted their use of a computer in the workplace.

Respondents were asked to rate their level of confidence in the use of 19 IT equipment/software products. All the products were non-specific to health care. The aim of the question was to provide a general overview of the use of IT by the respondents, with the assumption that exposure to and use of IT would lead to increased confidence in its use. The overall confidence level for the use of IT ranged from a high of 93% (n=114) for using a (computer) mouse to a low of 38% (n=47) for both the use of statistical software

(SPSS) and the Apple Mac operating system. These products were not generally familiar to staff – they were more familiar with Microsoft-based programmes. This may have accounted for the low confidence score as did more specialised products such as the use of reference tools (endnote), 55% (n=64) and data projectors, 53% (n=66). The overall results demonstrated that high levels of confidence in the use of IT were confined to using a computer, 89% (n=109) and common applications such as a mouse, 93% (n=114), keyboard, 91% (112), internet, 84% (n=104) and email, 80% (n=98). Confidence in the use of the internet was greater than that for the intranet which was opposite to what an Australian study found (Hegney et al., 2007) where overall access to the intranet was greater than that for the internet.

The use of 19 health industry IT applications was also assessed. High figures for applications that were never accessed by respondents included applications that were specific to certain specialisations and may not have traditionally been seen as a nursing role. These applications included appointment scheduling, 78% (n=98) and bed management, 78% (n=97). Hence the results for these applications are not surprising. However, other applications that scored high included clinical documentation (83%; n=104) and medication management (80%; n=102). This mildly surprising finding may be due to the fact that all records for these applications are still paper-based. This may change for certain applications with the introduction of WISDOM and with a higher uptake (of WISDOM) as nursing staff become more familiar and comfortable with IT based applications.

Applications that were used more often and scored lower included generic applications such as ‘continuing professional education’ (26%; n=33) as was found in an Australian study (Hegney et al., 2007) where this application scored only 18%. The most frequent uses were for continuing professional education, accessing evidence based practice, accessing results from the lab, and communication with professional/voluntary organisations, with ‘frequently’ or ‘always’ combined use recorded by 33% (n=41), 27% (n=33), 25% (n=31) and 20% (n=24) of nurses respectively. These figures are low and strongly suggest that there is room for expansion in the use of IT in nursing practice.

When participants were asked to list what restricted their use of a computer in the workplace they responded as follows. The highest response recorded was for concerns

about own health and safety, 87% (n=102) which never restricted the use of a computer along with age, 78% (n=91). This conveys the fact that a participant's age was not a factor in restricting their use of a computer. Overall respondents were positive in responding to the statements asking them what restricted their use of a computer, with other work demands (20%; n=23) always restricting their use of a computer being the highest response. A potential reason for this finding is that information about health initiatives (WISDOM) may be made available but current workloads prevent nurses accessing that information. Another reason may be that information is made available in a manner that is not easily accessible by the nurse (e.g. e-mail). Both of these reasons were returned in the qualitative data in the study. Workload was also found to restrict usage in an Australian study (Hegney et al., 2007). Age, 78% (n=91) was found to never restrict a nurses use of a computer with a similar figure (77%) found in the Australian study.

#### **5.4 Attitudes towards the use of IT at Work**

This section of the questionnaire examined mental health nurses attitudes towards IT and the new WISDOM system.

When asked if computers contributed to their professional role as a mental health nurse, 54.5% (n=68) of respondents agreed/strongly agreed that it did. When respondents were asked if they avoided using a computer whenever they could, 69% (n=86) disagreed/strongly disagreed with this statement. Eighty six per cent (n=107) of respondents also agreed/strongly agreed that learning about computers is essential for nurses working in today's health service. This would suggest that participant mental health nurses were strongly in favour of using IT and are willing to use computers to assist them in their duties.

With regard to the new WISDOM system, 57% (n=71) agreed/strongly agreed that they had been well informed about the introduction of the new WISDOM system. In response to being asked if they had been given regular updates about the progress of the WISDOM project, 54% (n=67) did not agree/strongly disagreed with this statement. There was also a high negative response from respondents when they were asked if they had received adequate training to operate the WISDOM system, with 52% (n=64)

disagreeing/strongly disagreeing with this statement. While there was a training programme in place for WISDOM, a reason for the high negative response may have been that a lot of staff had yet to participate in this training prior to completing the questionnaire. Only 31% (n=37) responded that they had received adequate training. Forty six per cent (n=57) of respondents were however, more positive when agreeing/strongly agreeing that WISDOM would have a positive impact on the delivery of the mental health service. Forty eight per cent (n=61) of respondents also agreed / strongly agreed that WISDOM would improve and add to the delivery of patient care. It should be noted that 47% (n=58) and 41% (n=51) of respondents gave a 'neutral' response for these two questions respectively.

It seems that these findings indicate that mental health nurses were still unclear and unsure about the introduction of the new WISDOM system. There were a lot of negative responses to this section both to information being made available about WISDOM and for training on this system. There were some positive responses to WISDOM in that it would improve the service and patient care. As WISDOM was only a new system and given that this study was carried out in the early days of its introduction, a follow up study at a later date may show a more positive outlook for WISDOM as staff become more familiar with its use.

The final question in this section asked respondents if they believed that their level of computer literacy was restricting their career development. Seventy per cent (n=88) of respondents disagreed/strongly disagreed with this statement. When age is taken into account, 29% (n=36) of respondents aged between 41 and 55yrs did not see computer literacy as a problem with career development.

The last two questions in this section and all the questions in Section D required some thematic analysis. When asked what they thought the advantages of using IT in the mental health setting were, 35% (n=44) of respondents identified that it would improve information sharing. Nearly two thirds of respondents indicated that it would not. This is contrary to findings found in a survey carried out by Sensmeier (2006) who found that two thirds of respondents stated that health IT tools provide an effective way to communicate with interdisciplinary colleagues.



The largest number of comments referred in particular to the use of IT and WISDOM and that its use was only as good as the person(s) using it and that everybody needed to use it.

- *You will not have an IT system that is used properly if all members/professionals are not willing to use it as part of their daily work.*
- *An IT system is only as good as the people using it.*

Another advantage is improved patient/client care, with 16% (n=20) of respondents seeing this as an advantage. A finding supported by both Clamp and Keen (2007) and Follen et al. (2007), who both noted that IT leads to faster access to real-time information (lab results, prescriptions etc). The effective and efficient use of computers will ultimately enhance the quality of care that clinicians and case workers provide to their clients (Noto, 2005) and which was recognised by 16% of respondents in this study. Fleming (2007) notes that an electronic health record (EHR) can reduce medical errors (a finding that was not highlighted in this study as WISDOM does not allow for electronic prescribing or administration). Better treatment decisions can also be made utilising IT through the use of fewer redundant laboratory tests (Balaban, 1998). Sixteen per cent (n=20) of respondents in this study recognised this. Respondents also replied that IT allows easier and quicker access to information and client details (16%; n=20) through producing legible notes and allowing quick and easy access to patient information (Schuman, 2006).

The main advantage of an EHR for a clinician is improved access to patient information when visiting a service user at home and when on call, and is a link between hospital and community based services (Johnson, Benbow & Baldwin, 1999). Respondents in this study (12%; n=15) also indicated that another advantage of IT is that it improves communication. As indicated by 35% (n=44) of respondents, this can be accomplished through information sharing and was noted as an advantage by (Clamp & Keen, 2007). According to Toofany (2006:19), it is generally accepted that IT improves the communicative and network capabilities of healthcare professionals, by reducing the fragmentation in health care. That only one respondent noted that it would be a good investment (e.g. it can provide cost savings) is surprising given that much research (Clamp & Keen, 2007; De Phillips, 2007; Mangalampalli et al., 2006; Puskar et al., 2004; Seidenberg, 2008; Sensmeier, 2006) have highlighted this benefit. However, IT

would need to be adopted broadly and assimilated in the health care setting to realise any potential investment benefit (Davidson & Heslinga, 2007).

It should be noted that computers and their related databases on their own cannot make a patient better. IT investments need to be paired with changing staff practices to produce a return on investment, meaning a change in work processes may be required for staff to become more efficient (Parente & Van Horn, 2007). This could be progressed in mental health through local and national arrangements negotiated with all key stakeholders i.e. employer and employee representative bodies and other advocacy agencies on behalf of the client/patient. However, with the present industrial relations climate as it is in this country, this may be a lot further away than is achievable or possible.

Other advantages noted by respondents (7%; n=6) included that it would assist with clinical documentation, i.e. improve legibility, and easier charting as noted by Puskar et al. (2004); Schuman (2006) and Wallis (2007). Finally, some respondents also noted that an advantage to IT is that it can be more secure and confidential (1.5%; n=2), allowing secure access and indicated by Lolli (2006) and Puskar et al. (2004). This relatively low figure indicates that respondents did not yet see this as an advantage. Indeed, this was noted by some respondents to be a significant disadvantage.

There were also a lot of positive comments about the WISDOM system from respondents.

- *In general WISDOM will be welcomed.*
- *WISDOM will provide valuable information on how community mental health facilities are utilised.*

When asked what they thought the disadvantages of using IT in the mental health setting were, respondents indicated that time (37%; n=46) would be a central issue. Integrating and implementing an IT system can be time-consuming, resulting in less time available for clinical contact with patients. This finding is supported by Puskar et al. (2004) who noted that this can be the case when a system crashes and information is lost. In contrast, introduction of an EHR can further enable health care workers greater access to timely, reliable and accurate data (Connick 2006). Participants (29%; n=36)

also highlighted how confidentiality and security issues were a disadvantage. Potentially unsafe storage and access to data was highlighted by Myers et al. (2008) because some data can be easily duplicated and transmitted to unauthorised persons. In a British study Tracy et al. (2004) highlighted how patients of one medical practice expressed concerns regarding the confidentiality of computer records, and their availability and access even to same-team professionals. Christensen, Griffiths and Evans (2002) noted that IT can compromise privacy, as can the very ease of access to and use of patients' medical records (Nymark, 2007). Wallis (2007) noted that patients will benefit because, as their records become more accessible to clinicians, they will become safer and improve care. However 29% (n=36) of respondents in this study disagreed with this.

Other respondents in this study had concerns that patient care would be neglected in favour of administration duties.

- *I would have concerns over the evolution of a PC Nurse, instead of concentrating on the important task of nursing practice.*
- *Patient care neglected in favour of office tasks/duties.*

Another disadvantage noted by respondents (6%; n=8) was the lack of resources, available to fully implement IT, as has been highlighted by Adams (2008) with perceived high costs for implementation and operation. Callan and DeShazo (2007) note that IT is too expensive. Christensen, Griffiths and Evans (2002) note that IT is expensive to develop and also has high maintenance costs. Grant (2008) highlights that IT comes with high capital investment costs, especially when coupled with system delays which can lead to cost over-runs (Hunter & Ciotti, 2006). Resistive staff attitudes (6%; n=8) was another disadvantages noted by respondents and this can influence the success or failure of IT in health care settings (Walter, Cleary & Rey, 2000) as can lack of IT skills/training (10%; n=12). If computers are to become a part of health care culture, an undertaking to provide adequate training needs to be followed through (Walter, Cleary & Rey 2000) especially for new staff (Cleary & Freeman, 2005).

## **5.5 Views on the Introduction of IT (WISDOM)**

This section looked specifically at mental health nurses attitudes towards the new WISDOM system.

One of this study's research questions was to determine how prepared nurses were to engage with new IT initiatives. Participants were asked what factors assist or impede the introduction of new health technology such as WISDOM. They indicated that several factors could assist its introduction, including adequate training/support (22%; n=28), with staff being reassured that they will be provided with enough time to learn how the new system works and that on going support will be provided during and after its introduction (Callan & DeShazo, 2007). Support was also identified as being important by Johnson, Benbow and Baldwin (1999). An IT system is only as good as the person using it hence, training is the benchmark of a systems ultimate success with regard to uptake and popularity (Burke, 2006).

Another factor that assists the introduction of new technology is information availability. According to 12% (n=15) of participants, this includes staff consultation, as suggested by Walter, Cleary and Rey (2000). Toofany (2006) notes that the successful implementation of clinical IT systems is highly dependent on user acceptance and will not succeed if it is not supported by staff. If nurses are to embrace IT, then they must be consulted on its introduction and use. According to Zambutto and Grimes (2008) successful development and implementation of an IT implementation plan requires appropriate stakeholder participation. However, they can often be overlooked in the change management process (Toofany, 2006). Involvement of nurses during development and provision of adequate information will instil confidence and buy in from staff (Nacey, 2007) and is very important for health information technology (HIT) implementation to be a success (Szydlowski & Smith, 2009). According to anecdotal evidence, nurses who have been involved in IT development especially around data standards development, have an improved understanding of e-health Wallis (2007).

Some respondents in this study (9%; n=11) indicated that having adequate resources, also assists with the introduction of new technology and this needs to come from the organisation and management, as suggested by Doebelling, Chou and Tierney (2006).

This should include training and support costs and/or other funding (Callan & DeShazo, 2007). Other respondents (7%; n=11), also indicated that staff would need time to change and to become competent and confident with the new technology, called ‘buy in’ by Callan and DeShazo, (2007) allowing them to accept and adapt to the new technology.

Participants’ views were also sought regarding what might impede the introduction of new technology. The most popular responses were staff resistance and negative staff attitudes (both 32%; n=40). Adams (2008) agrees that some staff may be reluctant to change, no matter how good IT systems are. IT systems will not deliver expected results without staff support in the use of these systems (Toofany, 2006), especially at the initial stage of introduction (DePhillips, 2007). The clinical decision-making process in psychiatry has also been highlighted as a potential additional barrier (Kotze & Brdaroska, 2004) due to clinician, organisational and technological factors.

A lack of IT skills (14%; n=18) and lack of training and education (12%; n=15) were also noted by participants as potential barriers to the introduction of IT as was highlighted by Callan and DeShazo (2007), and specifically for some IT applications such as email (Cleary & Freeman, 2005). Szydlowski and Smith (2009) indicated that there is not enough basic IT education available.

IT can also be time consuming (14%; n=18) with time pressure being the most significant barrier to the adoption of potentially useful technologies (Johnson, 2001). This is especially so when it is first introduced, with insufficient time being allowed to select, contract, install and implement HIT (Pope, 2005). The time demands required to input data was also another theme that generated a number of comments.

- *If a CPN visits 9 – 10 patients daily, it will take 50 – 60 minutes to input data onto WISDOM on top of their usual documentation. This is time consuming and one hour less for patient care daily.*
- *Some units are very busy due to workload. Therefore this additional duty will cause stress to staff.*

Some respondents (9%; n=11) also noted that a lack of resources and the high cost, of these systems might impede the introduction of IT, as suggested by (Wilson, 2009) who highlighted that physicians and hospitals have ranked financial barriers as the greatest deterrent for the adoption of EHR. Cost has also been identified as a barrier to EHR adoption (Kazley & Ozcan 2007; Pope, 2005). All these research findings highlight how IT is not a one-time or a low-risk investment, even with proven technologies (Johnson, 2001).

When asked what were the positive implications of WISDOM, participants replied that it would lead to quicker and easier access to information, 23% (n=29), more sharing of information, 18% (n=22), and improve patient care and communication, 16% (n=20). It would also allow more information to be available to team members, 11% (n=14) and develop a database, 11% (n=14) of patients/clients. These points are discussed in the section that dealt with the advantages of IT.

When participants were asked what the negative implications of WISDOM were, they replied that it would be time consuming, 23% (n=29) and there would be a lack of confidentiality, 16% (n=20) with security issues being raised here also. Concerns were expressed that security of information and safe storage of data could be a draw back of WISDOM. There would also be staff resistance to embrace the system, 11% (n=14) and more time required to input data, 7% (n=9). Again these points are discussed in the section that dealt with the disadvantages of IT.

## **5.6 Respondents General Attributes**

Questionnaires were distributed only to registered mental health nurses, with 44% (n=50) of respondents working in a hospital setting and 44% (n=20) of these using a computer. Twenty seven per cent (n=32) worked in a community setting with 78% (n=25) of these using a computer. Seventeen per cent (n=20) worked in an SRU, with only 20% (n=4) of these using a computer. Four per cent (n=5) worked in a day hospital with 80% (n=4) of these using a computer. Three per cent (n=3) worked in a day centre with none of these respondents using a computer. Finally, 5% (n=6) of respondents replied that they worked in other locations in the service with 67% (n=4) of these using a computer.

When participants were asked to record their age, 53% (n=61) of respondents were aged between 41 and 55yrs of age, of which 55% (n=33) of these used a computer. Twenty four per cent (n=28) were aged 51yrs or over, and 39% (n=11) of these used a computer. This result shows an experienced age level of nurses at the upper age level in the DMHS with 28% (n=35) of this age group using a computer and 89% (n=29) of this age group in a management position.

When asked how long they had worked in the DMHS, 54% (n=60) of respondents had worked for between 0 and 10yrs, with 10% (n=12) in a management position. Twenty eight per cent (n=32) of respondents were employed in the DMHS between 26 and 35yrs, with 13% (n=15) in a management position.

## **Chapter Six**



## **6 CONCLUSION**

### **6.1 Introduction**

The previous chapter discussed the findings of this study relative to the current body of literature and the aims of the study. The specific research questions of this study were:

1. How do mental health nurses access IT at work and what if any are the advantages and disadvantages of using IT in the mental health setting?
2. What are the attitudes of mental health nurses towards IT and what is the ability of mental health nurses to use IT in mental health care? i.e. does it impact on their work performance?
3. What are the factors that can assist or impede the introduction of an IT system into mental health?
4. What effects (positive or negative) will the introduction of WISDOM have on the delivery of mental health care?

The results of this study lead to a number of conclusions and recommendations for both the DMHS, as well as for future research. The limitations of this study are also acknowledged in this chapter.

### **6.2 Conclusions and Implications for Future Practice**

Findings on mental health nurses access to technology while at work was positive, with the majority of nurses agreeing (95%; n=117) that they did have access to technology at work. However, only half of these (50%; n=62) actually used a computer for work purposes. The majority of nurses also had access to the internet (82%; n=98) but again just over a third of these (36%; n=44) accessed this for work purposes. This highlights the fact that mental health nurses do have access to IT while at work but are not utilising it for work purposes. Nurses are becoming more comfortable with the use of IT and its associated applications and equipment, especially the more familiar equipment such as a mouse (93%; n=114), keyboard (91%; n=112) and computer (89%; n=109). Results from this study also showed that nurses were comfortable with using IT applications such as the internet (84%; n=104) and e-mail (80%; n=98). Further education of mental health nurses in the use of IT may be required to improve their IT skills and increase their use of IT.

Respondents in this study were confident in using IT equipment that was familiar to them, but this level of confidence dropped significantly when using more complicated and unfamiliar equipment. Respondents were also asked what they used IT for. The most popular applications were for continuing professional education (33%; n=41) accessing evidence based practice (27%; n=33) and accessing lab results (25%; n=31). However, only a small number of participants indicated such usages suggesting that there is room for expansion of the use of IT in nursing practice. Although this study did not look at the computer skills of newly qualified nurses, other studies suggest that their confidence in using IT is higher because of their exposure to and use of IT during their education. There is room for improvement if nurses are to fully utilise IT in their workplace?

Mental health nurses indicated that they were strongly in favour of using computers and IT, with the majority of respondents (54.5%; n=68) agreeing that computers do contribute to their professional role as nurses and do not avoid using computers. The majority of nurses (86%; n=107) also agreed that learning about computers is essential when working in today's health service. This would support the finding that mental health nurses do have a positive attitude towards IT and its use.

Respondents indicated that they have mixed feelings about the introduction of the WISDOM system. They agreed that they were well informed about the introduction (57%; n=71) of WISDOM but were not adequately trained (52%; n=64), possibly because they had not yet attended the associated training. Nearly half of the respondents (46%; n=57) agreed that WISDOM would have a positive impact on the delivery of the mental health service and would add to the delivery of patient care (48%; n=61), with a large proportion of respondents undecided. This may improve as staff become more familiar with WISDOM. Employers need to make IT-related continuing professional education available to ensure that nurses develop and maintain their competencies in using IT applications in the work environment. This may best be done by integrating such training (and associated budgets) into the relevant service plans.

Advantages that respondents found in using IT and WISDOM included that it would improve information sharing (35%; n=44) and also allow easier and quicker access to information and client details (16%; n=20) and also improve communication (12%;

n=15). This supports the concept that IT, and more specifically WISDOM has the capacity to improve the data availability (and the associated management) of a mental health service. This should also help improve the work performance of mental health nurses through improved communication and information sharing among CMHT members. The biggest disadvantages according to respondents of using IT and also WISDOM are that it was time-consuming (37%; n= 46) and would give rise to concerns around confidentiality (29%; n=36). Indeed it is probable that, WISDOM will be time-consuming initially until such time that staff become familiar with its application, but again given time and training this should also improve.

When asked what factors assist the introduction of new IT, respondents replied that training and support (22%; n=28) was important along with good information about the technology being available (12%; n=15). Negative staff attitudes (32%; n=40) and a lack of IT skills and training (26%; n=33) were the biggest impediments noted by respondents to the introduction of new IT. To ensure that the introduction of new technology is successful, adequate training, follow up support and resources to implement the change will be required. If the use of IT is to increase in nursing, then employers must take appropriate action to address all barriers that were identified in this study. Nurse Managers need to work closely with nursing staff to ensure that barriers to the introduction and use of IT can be addressed in a co-operative and partnership approach. Computers and IT in general are becoming an integral part of health care. IT needs to be integrated in a manner that assists nurses to use it productively at the point of care for the patient. If nurses are to fully engage with IT initiatives and continue to support them, they need to be treated as key stakeholders in those initiatives. Engagement of nursing staff with change is very important and should be introduced with care and consideration. The nurses' voice should be heard.

### **6.3 Limitations of the Study**

The primary aim of this study was to investigate if the implementation of an electronic mental health information system (WISDOM) could improve the data availability for the management of a mental health service in Ireland? The researcher is cognisant that there are several limitations to this study.

- This is the first formal research project carried out solely by the researcher, and therefore, researcher inexperience is a recognised limitation of this study.
- While every effort was made to remain neutral through adherence to research protocols, bias on behalf of the researcher (a mental health nurse), may be a limitation of this study given that the study examined mental health nurses perceptions and attitudes.
- The sample size and the sample selection is a limitation of this study as it is only representative of a single mental health service in Ireland, and limits the generalisability of the study's findings.
- One of the limitations of using a survey design became apparent with the quantity and depth of comments provided by respondents. On reflection, interviews or focus groups might have produced stronger confirmation of the findings, had time and the word count allowed for this.
- As no suitable instrument was identified in the literature that addressed the objectives of the study, a questionnaire was developed following an in-depth examination of the literature. To establish rigour, the questionnaire was piloted among 10 (n=10) nurses from the overall sample size and reviewed by a senior lecturer in the department of Health Policy Management, Trinity College, Dublin and the researcher's supervisor. It is recognised that the use of a newly developed research instrument has methodological limitations.
- There may have been socially desirable responding among some of the participants to give answers that they thought the researcher would like.

## **6.4 Recommendations for Further Research**

This study highlights a number of issues for concern and further research should be undertaken to:

- Evaluate the impact on the standard of care and the cost-effectiveness of an increase in computer use in the area of mental health.
- Compare the IT use and skill level of newly qualified nurses with that of existing qualified mental health nurses.
- Evaluate the use of IT among mental health nurses nationally and/or the impact of the introduction of WISDOM.

- Evaluate the impact of WISDOM on the DMHS in approximately 12 to 18 months.
- Monitor and evaluate whether implementation of the suggested recommendations of this study sufficiently address the identified deficits among mental health nurses in relation to IT.
- Examine more closely, possibly by using a qualitative research approach, the specific attitudes and needs of mental health nurses in relation to IT in the health care environment.

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## **Appendices**

## **Appendix 1**

### **What does WISDOM do?**

WISDOM is a web-based system, accessible via the HSE network, which will be used by mental health professionals to document store and access patient information including personal details, social and clinical details and details of patient activity inputted by users to create a centrally located register (database) for all patients/clients within the service (HRB, 2008a).

### **What are the perceived benefits of WISDOM?**

- WISDOM will create a comprehensive, detailed record of patients within the mental health services structure. This will improve efficiency by making patient information readily available to both in-patient and community care services in an agreed format on a single system;
- WISDOM has many practical benefits for the user including a scheduler and a letter and reports generator. These will save time by reducing repetition of information on different forms and documents;
- It will improve secure sharing of information between health care professionals by having a centralised patient database, and a standardised letter and scheduler functionality;
- The letter section of WISDOM will reduce time spent on generating letters for appointments and referrals;
- The system will increase health care providers' awareness of patients who are poor attendees or who have not been seen by the mental health service for long periods;
- It will facilitate access to real-time patient information for out-of hours services
- It will influence and impact on service planning in the context of responding to service user needs;
- In time, it will provide information for national reports and research which will inform policy, planning and practice (HRB, 2008a);

WISDOM will be hosted on a HSE server and mental health staff (both clinical and administration) will access the system via the Government Virtual Private Network

(GVPN). The database server will be on a Windows server platform and Microsoft Windows Server and Internet Information Server (IIS) will be deployed on the Web Page Server (ICT Programme Management Office, 2008).

This piece of research was initiated in response to the introduction of WISDOM and the lack of research that has been completed in the area of IT and mental health nursing. The aim of this research study is to investigate if the implementation of an electronic mental health information system (WISDOM) can improve the data availability for the management of a mental health service in Ireland, and does it impact on the delivery of care and also to examine mental health nurses attitudes towards IT.

## **Appendix 2**

The specific objectives of this study were:

1. To explore the perceptions of mental health nurses regarding whether the introduction of a mental health information system (WISDOM) could assist in the delivery of a mental health service and impact on patient care and the service user?
2. To explore the perceptions of mental health nurses on how the work performance of nursing staff is improved or not improved by the introduction of WISDOM and the accompanying electronic patient record.?
3. More generally, to examine the attitudes of mental health nurses towards IT?

These objectives lead the researcher to formulate the following research questions:

1. How do mental health nurses access IT at work and what if any are the advantages and disadvantages of using IT in the mental health setting?
2. What are the attitudes of mental health nurses towards IT and what is the ability of mental health nurses to use IT in mental health care? i.e. does it impact on their work performance?
3. What are the factors that can assist or impede the introduction of an IT system into mental health?
4. What effects (positive or negative) will the introduction of WISDOM have on the delivery of mental health care?

### **Appendix 3 – Features of an EHR**

An EHR is a suite of information systems that gather and store data about patients, enabling health care providers to access this data, support the entry of patient care orders and provide computer-based decision support (Glaser, 2007). An EMR stores clinical data and according to Thielst (2007) it is owned, accessed and contributed to solely by the health provider (doctor, nurse, clinic, hospital) but an EHR points to where other health information on the patient can be found, and also allows a patient to contribute and interact with the clinician. EMR and EHR systems focus on staff at all levels and provide them with information to make better informed decisions that affect patient safety and the quality of care (Buell, 2007). The introduction of EHR systems is a key factor in facilitating a partnership between physicians and patients and allowing patients to take a more proactive role in their health care (Callan, 2008).

#### **Features of an EHR include:**

- A problem list that clearly identifies a patient's clinical problems, patients' clinical history and the current status of each problem (clinical information);
- Primary information resource during the provision of patient care by health professionals;
- Provides secure, reliable, real-time access to patient health record information when and where it is needed to support care;
- Support for structured data collection and the storing of such information and the sharing of this information;
- Can help to evaluate and manage the quality and costs of health care;
- Supports simultaneous access from multiple locations;
- Reporting and population health management;
- Assists in resource planning (DePhillips, 2007; Glaser, 2007; Mangalampalli et al., 2006).



#### **Appendix 4 – Features of E-mail/E-health**

The term electronic health (e-health) encompasses the internet and related technologies and aims to improve health care by enhancing communication pathways between service providers and patients (Eysenbach, 2001). E-health is a tool that makes it easier to deliver professional skills over a distance and to serve individuals and organisations that may not have access to such services (Kirby, Hardesty & Nickelson, 1998) and which meets the needs of citizens, patients, health care professionals as well as policy makers (Rynning, 2007). One of the main goals of e-health is to provide health enhancing products and services to users that may improve the quality of life (Stjernswärd & Östman, 2006).

## Appendix 5

## Questionnaire

**What are mental health nurses attitudes towards Information Technology and how will the introduction of a new electronic mental health information system improve the data availability for the management of a mental health service in Ireland?**

This questionnaire is part of a research study in part fulfilment of an MSc programme. This is an anonymous questionnaire and return of the completed questionnaire in the enclosed self-addressed envelope implies that you have consented to participate in this study. It should take no more than 10 minutes to complete this questionnaire.

### **Section A: Access to Technology at Work**

**1. Do you have access to a computer at your work location?**

Yes ☐ No ☐

**2. Do you use the computer as part of your regular duties?**

Yes ☐ No ☐

**3. Does your computer have access to the internet?**

Yes ☐ No ☐ Don't Know ☐

**4. Do you access the internet as part of your regular duties?**

Yes ☐ No ☐

**5. Do you have a personal email address at work?**

Yes ☐

No ☐

I have one but do not use it ☐

**6. Do you use e-mail as part of your regular duties?**

Yes ☐ No ☐

**7. Please rank the below from 1 to 5 (1 being the most important) what you believe is the main reason for the adoption of IT in your workplace?**

Patient/client care ☐ Patient/client admin ☐

Income generation ☐ Saving money ☐

Office administration ☐


Other Reason (Please specify) \_\_\_\_\_ ☐

**8. Are you aware that a new electronic mental health information system called WISDOM is being introduced to the Donegal Mental Health Service?**

Yes ☐ No ☐

## **Section B: Ability to Use IT at Work**

- 9. How would you describe your level of confidence in the use of the following IT equipment/software? Please circle the number that applies to you: 1=very confident, 2=confident, 3=average confidence, 4=a little confident, 5=not at all confident. Alternatively, please tick the box if you have never had any experience with a particular technology for work purposes.**

|  |  |   |   |            |             |                          |
|--|--|---|---|------------|-------------|--------------------------|
|  | Very confident   |   |   | Not at all |             |                          |
|  |  |   |   | confident  | Never Used/ |                          |
|  |  |   |   |            | Not         |                          |
|  |  |   |   |            | Applicable  |                          |
| 1. Computer  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 2. Mouse   | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 3. Keyboard  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 4. Touch screen  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 5. Data projector  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 6. CD DVD ROM  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 7. USB memory sticks/flash drives                                      | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 8. Word processing   | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 9. Spreadsheets (Excel)  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 10. Database (Access)  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 11. Reference tools (Endnote)  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 12. Evidence based practice resources<br>(EBSCO/CINAHL/Web of Science) | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 13. Email  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 14. Presentation (PowerPoint)  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 15. Statistical software (SPSS)  | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 16. Windows operating system   | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 17. Apple Mac operating system   | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 18. Internet   | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |
| 19. Intranet   | 1  | 2 | 3 | 4          | 5           | <input type="checkbox"/> |

**10. How often do you use a computer for the following *WORK*-related purposes? Please circle the number that applies to you: 1=never, 2=rarely, 3=occasionally, 4=frequently, 5= always. Alternatively, please tick the box if that particular task is not applicable to the work that you do.**

|  | ←—————→ |   |   |   |   |                          |
|--|---------|---|---|---|---|--------------------------|
|  | Never   |   |   |   |   | Always N/A               |
| <b>Patient/client management</b>                               |         |   |   |   |   |                          |
| 1. Accessing patient records                                   | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 2. Appointment scheduling                                      | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 3. Bed management (admissions/discharges)                      | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 4. Patient/client assessment and documentation                 | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| <b>Clinical use</b>  |         |   |   |   |   |                          |
| 1. Clinical documentation: TPR, BP                             | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 2. Medication management (administration/supply)               | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 3. Results from laboratory, radiology                          | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 4. Ordering diagnostic tests                                   | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 5. Accessing policies and procedures                           | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 6. Accessing evidence based practice                           | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| <b>Administration</b>  |         |   |   |   |   |                          |
| 7. Administrative reporting                                    | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 8. Staff management/rostering                                  | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 9. Financial (payroll/billing)                                 | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 10. Development of policies and procedures                     | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 11. Dealing with patient/client complaints                     | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 12. Recruitment  | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| <b>Other</b>   |         |   |   |   |   |                          |
| 13. Continuing professional education                          | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 14. Communication with professional/voluntary<br>Organisations | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 15. Accreditation  | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |
| 16. Other (Please specify) _____                               | 1       | 2 | 3 | 4 | 5 | <input type="checkbox"/> |

**11. Do any of the items listed below restrict your use of a computer in the workplace? Please circle the number that applies to you: 1=never, 2=rarely, 3=sometimes, 4= often, 5=always.**

|   | Never | ← | → | Always |
|---|-------|---|---|--------|
| 1. Not enough computers                           | 1     | 2 | 3 | 4 5    |
| 2. Location of computers                          | 1     | 2 | 3 | 4 5    |
| 3. It takes too long to log on                    | 1     | 2 | 3 | 4 5    |
| 4. Unreliable connection to the network           | 1     | 2 | 3 | 4 5    |
| 5. Response time of the computer                  | 1     | 2 | 3 | 4 5    |
| 6. Too many other work demands                    | 1     | 2 | 3 | 4 5    |
| 7. My age   | 1     | 2 | 3 | 4 5    |
| 8. My IT knowledge                                | 1     | 2 | 3 | 4 5    |
| 9. My confidence in its use                       | 1     | 2 | 3 | 4 5    |
| 10. Lack of IT support                            | 1     | 2 | 3 | 4 5    |
| 11. Lack of encouragement by management           | 1     | 2 | 3 | 4 5    |
| 12. I don't have any interest in using a computer | 1     | 2 | 3 | 4 5    |
| 13. Concerns about my own health and safety       | 1     | 2 | 3 | 4 5    |
| 14. Other (Please specify)_____                   | 1     | 2 | 3 | 4 5    |

### **Section C: Attitudes towards the Use of IT at Work**

**For Questions 12 to 20, please circle the number that most reflects your level of agreement with the following statements:**

**12. I feel that computers and IT in general contribute to my professional role as a mental health nurse.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**13. I avoid using computers whenever I can.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**14. Learning about computers is essential for nurses working in today's health service.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**15. I have been well informed about the introduction of the WISDOM system.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**16. I was regularly given updates about the progress of the WISDOM project.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**17. I have received adequate training in order to operate the WISDOM system competently.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**18. The WISDOM system will have a positive impact on the delivery of the mental health service.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**19. The WISDOM system will improve and add to the delivery of patient care.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**20. I believe that my level of computer literacy is restricting my career development.**

|                |       |         |          |                   |
|----------------|-------|---------|----------|-------------------|
| Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 5              | 4     | 3       | 2        | 1                 |

**21. What do you think the advantages are of using IT in the mental health setting?**

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**22. What do you think the disadvantages are of using IT in the mental health setting?**

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**Section D: Views on the Introduction of WISDOM**

**23. In your opinion what are the factors that assist or impede in the introduction of new health technology such as WISDOM?**

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**24. What do you feel are the positive implications for the WISDOM system?**

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**25. What do you feel are the negative implications for the WISDOM system?**

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**26. Other Comments. Please use this space to provide additional comments and suggestions that you feel would contribute to this study....**

**Thank You**

**Please also complete the next page before returning both the questionnaire and the page in the enclosed stamped, addressed envelope. What are mental health nurses attitudes towards Information Technology and how will the introduction of a new electronic mental health information system improve the data availability for the management of a mental health service in Ireland?**



## **Section E: Respondents' General Attributes**

The information below is collected strictly for the purpose of creating appropriate control variables for interpreting the data gathered in the questionnaire. Only aggregate information will be presented in the study and no responses will be traceable to individuals. The data below will be stored separately from the returned questionnaires.

Please tick the appropriate boxes.

**1. Are you a registered mental health nurse employed by the Donegal Mental Health Service?**

Yes ☐ No ☐

**2. What is your assigned work location?**

Hospital ☐ Community ☐

Day Centre ☐ Day Hospital ☐

SRU ☐ Teaching ☐

Other (Please Specify) \_\_\_\_\_ ☐

**3. What is your age?**

20-25yrs ☐ 26-30yrs ☐

31-35yrs ☐ 36-40yrs ☐

41-45yrs ☐ 46-50yrs ☐

51-55yrs ☐ 56+yrs ☐

**4. How long have you been employed by the Donegal Mental Health Service?**

0-5yrs ☐ 6-10yrs ☐

11-15yrs ☐ 16-20yrs ☐

21-25yrs ☐ 26-30yrs ☐

31-35yrs ☐ 36+yrs ☐

**5. Are you currently in a management position (i.e. CNM II or above)?**

Yes ☐ No ☐

**Thank You**

**Please return both the questionnaire and this page in the enclosed stamped, addressed envelope.**

## Appendix 6

Dungloe Community Hospital,  
Dungloe  
Co. Donegal

Mr Raymond Guthrie  
Acting Director of Nursing  
Tir Conaill House  
St. Conals Hospital  
Letterkenny  
Co. Donegal

17<sup>th</sup> November 2008

### **Re: Proposed study on mental health nurses attitudes towards information technology and the introduction of WISDOM**

Dear Raymond

As you are aware I am currently in my second year of a Masters in Health Services Management from Trinity College in Dublin.

The working title of my study is: **What are mental health nurses attitudes towards Information Technology and how will the introduction of a new electronic mental health information system improve the data availability for the management of a mental health service in Ireland?** The aim of this study is to look at the attitudes of mental health nurses' towards information technology (IT), and to explore if the introduction and implementation of a mental health information system (WISDOM) can assist in the delivery of a mental health service and impact on patient care. The research model is exploratory and the research design is quantitative. Data collection will be through the use of an anonymous postal questionnaire being sent to registered mental health nurses in the Donegal Mental Health Services.

It is hoped that this study will inform mental health nurses attitudes to IT and how the introduction of a new electronic mental health information system will impact on the delivery of a mental health service. There are no anticipated risks associated with participation and participants are free to exit the study at any time by not completing the questionnaire.

I am writing to inform you that the participants for this study will be registered mental health nurses employed in the Donegal Mental Health Service and as a result I am seeking your permission to use this population sample for my research study.

Yours sincerely

---

**Liam Donnelly**  
Assistant Director of Nursing

Date:

**Re: Invitation to Take Part in a Research Study on Mental Health Nurses' Attitudes towards Information Technology and the introduction of a new mental health information system (WISDOM)**

Dear Colleague

I am currently in my second year of a Masters in Health Services Management from Trinity College Dublin. In part fulfilment of this MSc I am undertaking a study on mental health nurses attitudes towards information technology (IT) and the introduction of a new mental health information system (WISDOM).

The working title of my study is: **What are mental health nurses' attitudes towards Information Technology and how will the introduction of a new electronic mental health information system improve the data availability for the management of a mental health service in Ireland?** The aim of this study is to look at the attitudes of mental health nurses' towards information technology (IT), and to explore if the introduction and implementation of a mental health information system (WISDOM) can assist in the delivery of a mental health service and impact on patient care.

You are invited to take part in this study by completing the enclosed anonymous questionnaire, which is being distributed to you internally by the Research Officer to all registered mental health nurses in the Donegal Mental Health Services. The questionnaire should take no more than 10 minutes to complete. The accompanying Participant Information Leaflet will give you more details about the study.

Participation in this study is entirely voluntary and there will be no repercussions if you do not participate. There are no anticipated risks associated with participation, as it will not be possible to trace responses back to individuals due to the anonymous nature of this survey. You are free to withdraw anytime by not returning the questionnaire in the enclosed envelope.

If you consent to take part in this study, I would be grateful if you could complete the enclosed questionnaire and return it to me in the enclosed stamped self-addressed envelope at your earliest convenience, preferably by.....

If you have any queries or require further information regarding this study, please don't hesitate to contact me at the above address or on/or at: 074-9521860; 087-3282793; [liam.donnelly@hse.ie](mailto:liam.donnelly@hse.ie)

Yours sincerely

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**Liam Donnelly**  
Assistant Director of Nursing

**What are mental health nurses attitudes towards Information Technology and how will the introduction of a new electronic mental health information system improve the data availability for the management of a mental health service in Ireland?**

Dungloe Community Hospital  
Dungloe  
Co. Donegal  
Date

**RESEARCHER NAME: Liam Donnelly**

**SUPERVISOR NAME: Dr Michael Byrne**

This study is conducted in partial fulfilment of the M.Sc. Health Services Management degree at Trinity College Dublin.

**WORKING TITLE OF THE STUDY:**

**“What are mental health nurses attitudes to Information Technology and how will the introduction of a new electronic mental health information system impact on the delivery of a mental health service in Ireland?”**

**OUTLINE OF STUDY**

The aim of this study is to look at the attitudes of mental health nurses’ towards information technology (IT), and to explore if the introduction and implementation of a mental health information system (WISDOM) can assist in the delivery of a mental health service and impact on patient care.

**BACKGROUND TO THE STUDY**

The National Health Strategy, Quality and Fairness (2001) describes a vision for the future of the health services in Ireland and a need for modernisation. A Vision for Change (2001) recommended that measures be put in place to collect data on community-based mental health services and the introduction of an electronic patient record. In line with these recommendations, the Donegal Mental Health Service are piloting an integrated web-based mental health information system (WISDOM) to record service users activity for in-patient and community mental health care in Ireland. This project is being run in partnership with the health services executive (HSE) and the health research board (HRB). This study is independent of the HSE/HRB pilot and is being carried out as part of an MSc.

**METHOD OF DATA COLLECTION**

Data collection will be through the use of an anonymous questionnaire distributed internally by the Research Officer to registered mental health nurses in the Donegal Mental Health Services. Completed questionnaires will be returned to the researcher in the enclosed stamped, self addressed envelopes.

**RISKS TO PARTICIPATION**

There are no anticipated risks associated with participation. Participation in this study is entirely voluntary and your decision to participate or not will not lead to any repercussions. You are free to exit the study at any time by not completing the questionnaire. By completing the questionnaire and returning it to the researcher in the enclosed stamped self-addressed envelope, you will have implied that consent has been given to participate in this study.

**EXCLUSION FROM PARTICIPATION**

You cannot participate in this study if you are not a registered mental health nurse employed in the Donegal Mental health Service.

**CONFIDENTIALITY AND DATA STORAGE**

This questionnaire is anonymous and no responses can be traced back to named individuals. All information received will be treated with the utmost confidence. Only anonymous findings of this study will be reported in the thesis or in future publications. Only the researcher and his supervisor (who is appointed by Trinity College) will have access to raw data. On completion of the study, completed questionnaires will be retained for five years and securely stored in a locked cabinet (hard copies) or in a password protected computer (soft copies) for five years as specified by the TCD Faculty Ethics Committee.

**PERMISSION**

Ethical approval for this research study has been obtained from Trinity College Dublin and Letterkenny General Hospital. Permission to conduct the study has also been obtained from the Director of Nursing of the Donegal Mental Health service.

If you have any queries or require further information regarding this study, please contact me on/or at:

074-9521860

087-3282793

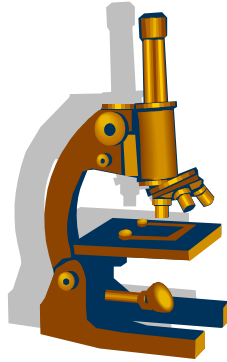
[liam.donnelly@hse.ie](mailto:liam.donnelly@hse.ie)

Yours sincerely

---

**Liam Donnelly**  
**Assistant Director of Nursing**

Appendix 9     **Final Days of Research Project**



**Final Reminder!!**

**Last call for completed questionnaires**

**Could all outstanding questionnaires on**

**“What are mental health nurses attitudes  
towards IT and how will the introduction of a  
new electronic mental health information system  
improve the data availability for the management  
of a mental health service in Ireland”**

**Please be returned in the stamped addressed  
envelope provided**

**Your participation will be greatly appreciated!!!**

**A big thank you to all those who have already  
returned their questionnaires**

**For further information please contact:  
Liam Donnelly on 087 3282793 or email [liam.donnelly@hse.ie](mailto:liam.donnelly@hse.ie)**

## Appendix 10

## Questionnaire Coding for SPSS

### Section A – Access to Technology at Work

#### Question 1

1 = yes                      2 = no

#### Question 2

1 = yes                      2 = no

#### Question 3

1 = yes                      2 = no

#### Question 4

1 = yes                      2 = no

#### Question 5

1 = yes                      2 = no                      3 = do not use

#### Question 6

1 = yes                      2 = no

#### Question 7

1 = patient care                      2 = patient admin                      3 = income generation  
4 = saving money                      5 = office admin                      6 = other reason

#### Question 8

1 = yes                      2 = no

### Section B – Ability to use IT at Work

#### Question 9

1 = very confident                      2 = confident                      3 = average confidence  
4 = a little confident                      5 = not at all confident                      6 = never used/not applic  
1 \_\_\_\_                      2 \_\_\_\_                      3 \_\_\_\_                      4 \_\_\_\_                      5 \_\_\_\_                      6 \_\_\_\_  
7 \_\_\_\_                      8 \_\_\_\_                      9 \_\_\_\_                      10 \_\_\_\_                      11 \_\_\_\_                      12 \_\_\_\_  
13 \_\_\_\_                      14 \_\_\_\_                      15 \_\_\_\_                      16 \_\_\_\_                      17 \_\_\_\_                      18 \_\_\_\_  
19 \_\_\_\_

#### Question 10

1 = never                      2 = rarely                      3 = occasionally  
4 = frequently                      5 = always                      6 = not available  
1 \_\_\_\_                      2 \_\_\_\_                      3 \_\_\_\_                      4 \_\_\_\_                      5 \_\_\_\_                      6 \_\_\_\_  
7 \_\_\_\_                      8 \_\_\_\_                      9 \_\_\_\_                      10 \_\_\_\_                      11 \_\_\_\_                      12 \_\_\_\_  
13 \_\_\_\_                      14 \_\_\_\_                      15 \_\_\_\_                      16 \_\_\_\_

**Question 11**

1 = never

2 = rarely

3 = sometimes

4 = often

5 = always

1 \_\_\_

2 \_\_\_

3 \_\_\_

4 \_\_\_

5 \_\_\_

6 \_\_\_

7 \_\_\_

8 \_\_\_

9 \_\_\_

10 \_\_\_

11 \_\_\_

12 \_\_\_

13 \_\_\_

14 \_\_\_

**Section C – Attitudes towards the use of IT at Work****Question 12**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 13**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 14**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 15**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 16**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 17**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 18**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 19**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree



**Question 20**

1 = strongly agree

2 = agree

3 = neutral

4 = disagree

5 = strongly disagree

**Question 21**

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**Question 22**

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**Section D – Views on the Introduction of Wisdom****Question 23**

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**Question 24**

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**Question 25**

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**Question 26**

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**Section E – Respondents General Attributes****Question 1**

1= Yes

2 = no

**Question 2**

1 = hospital

2 = community

3 = day centre

4 = day hospital

5 = SRU

6 = teaching

7 = other

**Question 3**

1 = 20-25

2 = 26-30

3 = 31-35

4 = 36-40

5 = 41-45

6 = 46-50

7 = 51-55

8 = 56+

**Question 4**

1 = 0-5

2 = 6-10

3 = 11-15

4 = 16-20

5 = 21-25

6 = 26-30

7 = 31-35

8 = 36+

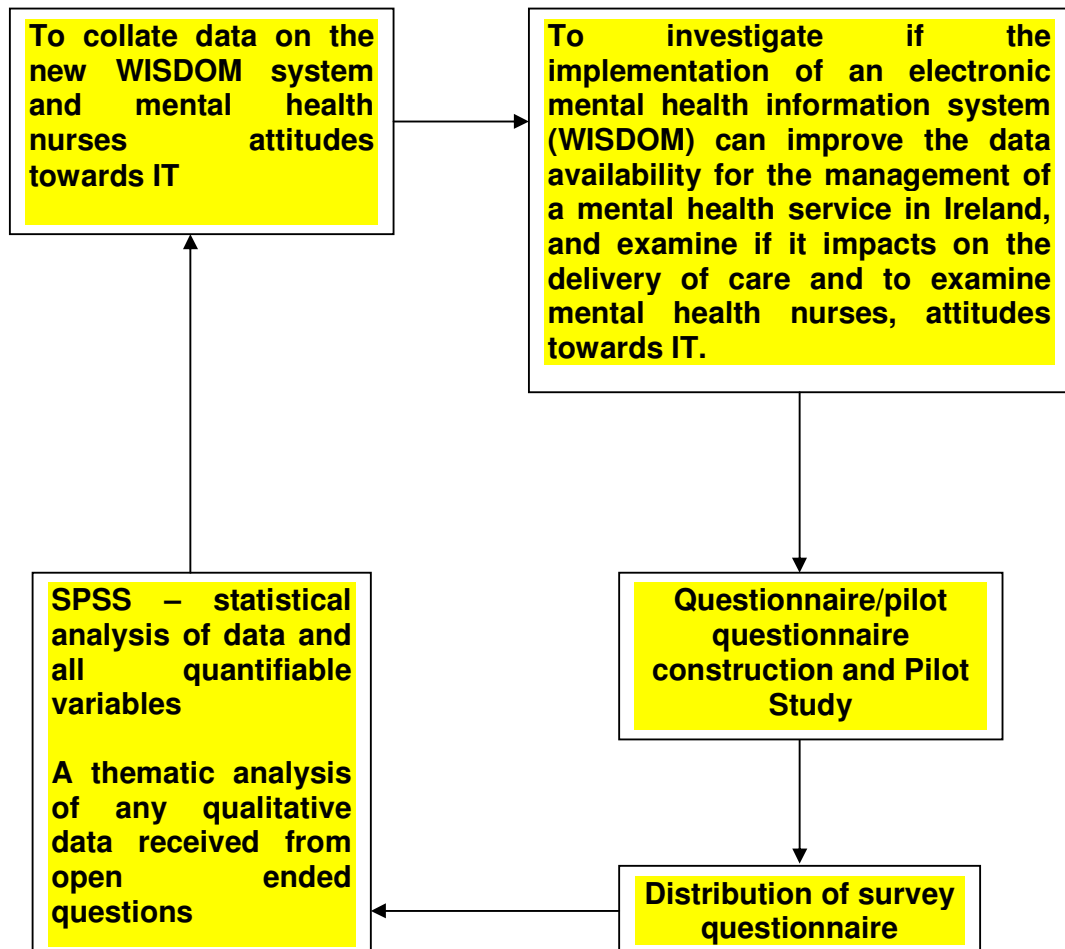
**Question 5**

1 = yes

2 = no

## Appendix 11

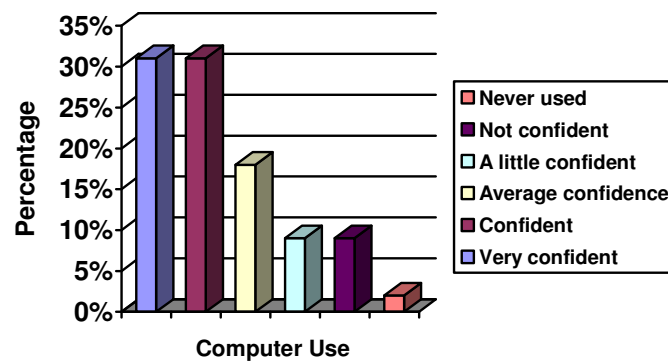
### Summary of data collection and analysis



## Appendix 12 - Level of confidence in using IT equipment/software

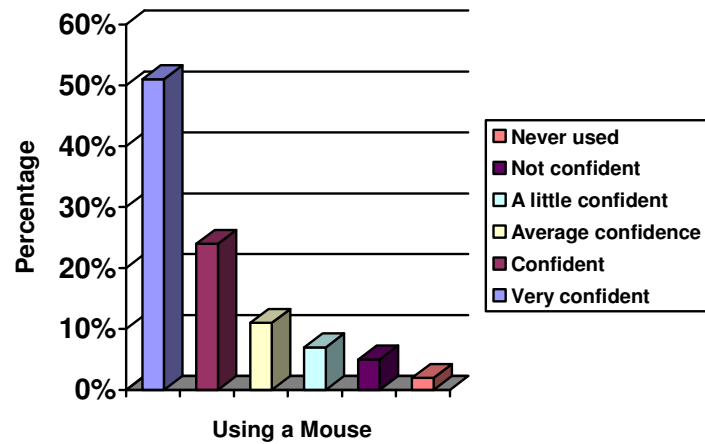
### Using a computer

The most popular responses were 31% (n=38) were very confident, 31% (n=38) were confident, 18% (n=22) showed average confidence, 9% (n=11) were a little confident, 9% (n=11) were not at all confident and 2% (n=3) never used a computer or found it not applicable.



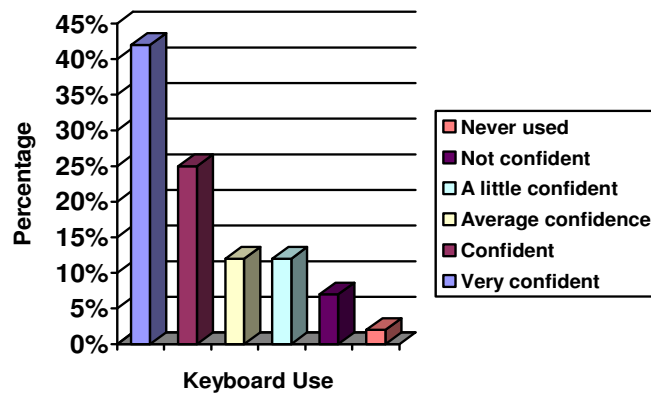
### Using a mouse

Fifty one per cent (n=63) were very confident, 24% (n=29) were confident, 11% (n=13) showed average confidence, 7% (n=9) were a little confident, 5% (n=6) were not at all confident and 2% (n=3) never used a mouse or found it not applicable.



### Using a keyboard

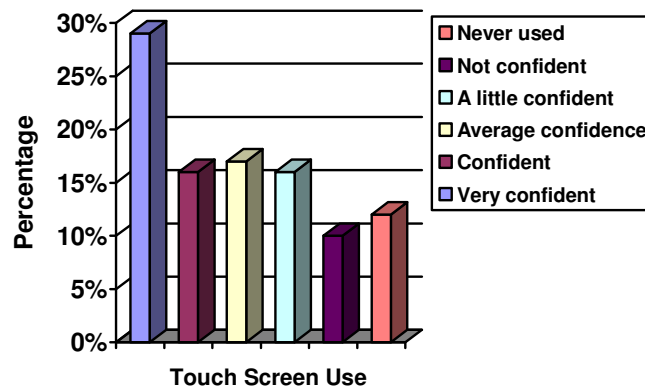
Forty two per cent (n=52) were very confident, 25% (n=31) were confident, 12% (n=15) showed average confidence, 12% (n=14) were a little confident, 7% (n=8) were not at all confident and 2% (n=3) never used a keyboard or found it not applicable.



### Using a touch screen

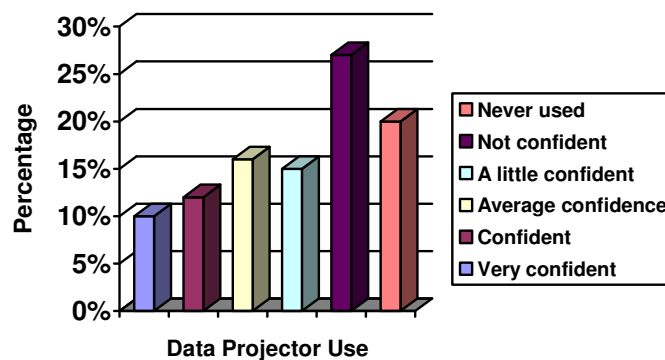
Twenty nine per cent (n=35) were very confident, 16% (n=19) were confident, 17% (n=21) showed average confidence, 16% (n=20) were a little confident, 10% (n=12)

were not at all confident and 12% (n=15) never used a touch screen or found it not applicable.



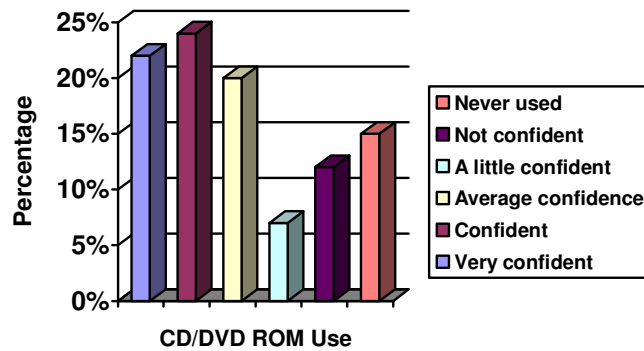
### Using a data projector

Ten per cent (n=12) were very confident, 12% (n=15) were confident, 16% (n=20) showed average confidence, 15% (n=19) were a little confident, 27% (n=33) were not at all confident and 20% (n=25) never used a data projector or found it not applicable.



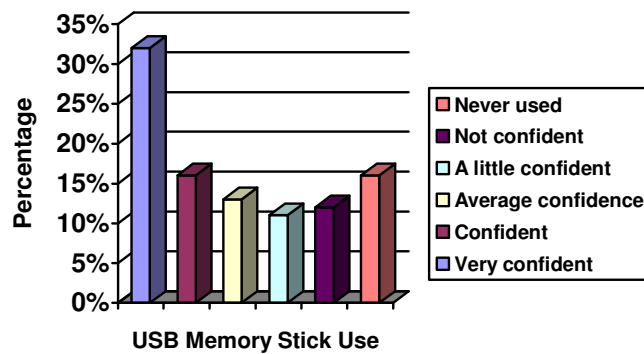
### Using a CD/DVD ROM

Twenty two per cent (n=27) were very confident, 24% (n=29) were confident, 20% (n=24) showed average confidence, 7% (n=9) were a little confident, 12% (n=15) were not at all confident and 15% (n=19) never used a CD/DVD ROM or found it not applicable.



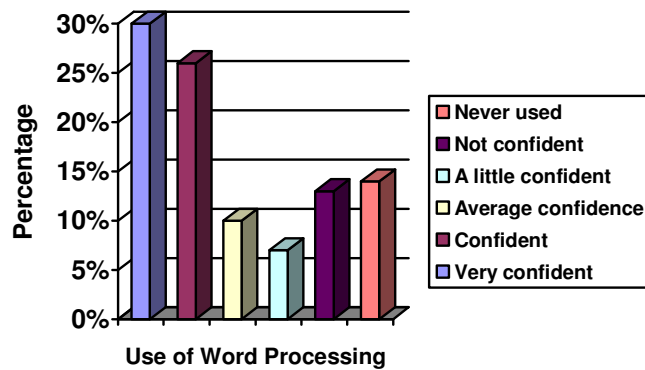
### Using USB memory sticks

Thirty two per cent (n=39) were very confident, 16% (n=20) were confident, 13% (n=16) showed average confidence, 11% (n=14) were a little confident, 12% (n=15) were not at all confident and 16% (n=20) never used a USB memory stick or found it not applicable.



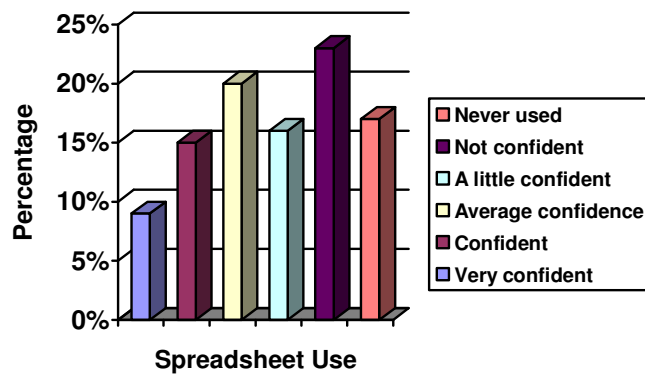
### Use of word processing

Thirty per cent (n=37) were very confident, 26% (n=32) were confident, 10% (n=13) showed average confidence, 7% (n=9) were a little confident, 13% (n=16) were not at all confident and 14% (n=17) never used word processing or found it not applicable.



### Use of spreadsheets

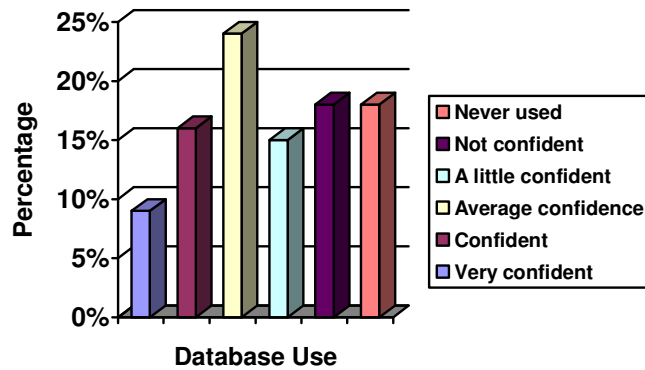
Nine per cent (n=11) were very confident, 15% (n=18) were confident, 20% (n=25) showed average confidence, 16% (n=20) were a little confident, 23% (n=29) were not at all confident and 17% (n=21) never used a spreadsheet or found it not applicable.



### Use of a database

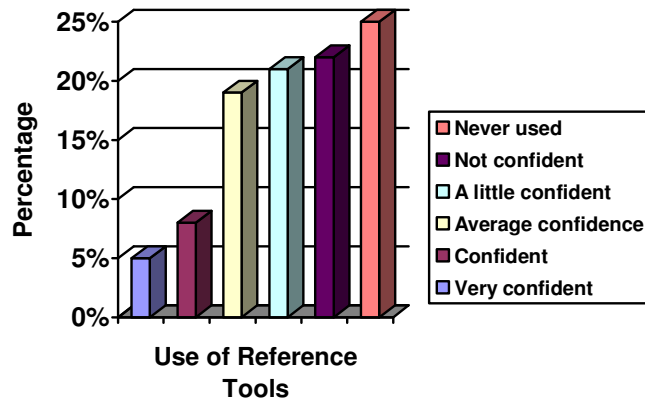
Nine per cent (n=11) were very confident, 16% (n=20) were confident, 24% (n=29) showed average confidence, 15% (n=19) were a little confident, 18% (n=22) were not at all confident and 18% (n=22) never used a database or found it not applicable.





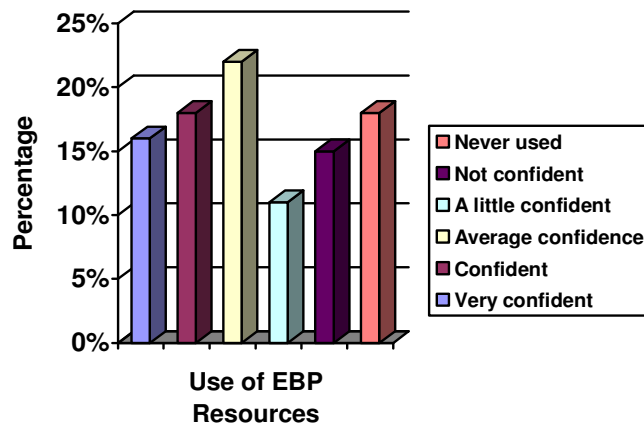
### Use of reference tools

Five per cent (n=6) were very confident, 8% (n=10) were confident, 19% (n=23) showed average confidence, 21% (n=25) were a little confident, 22% (n=27) were not at all confident and 25% (n=30) never used a reference tool or found it not applicable.



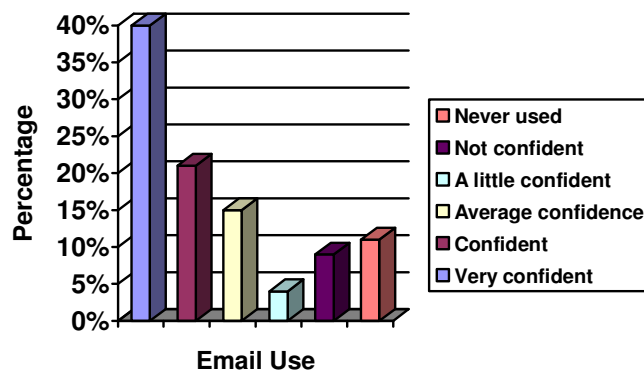
### Use of evidence based practice resources

Sixteen per cent (n=20) were very confident, 18% (n=22) were confident, 22% (n=27) showed average confidence, 11% (n=14) were a little confident, 15% (n=18) were not at all confident and 18% (n=22) never used an evidence based resource or found it not applicable.



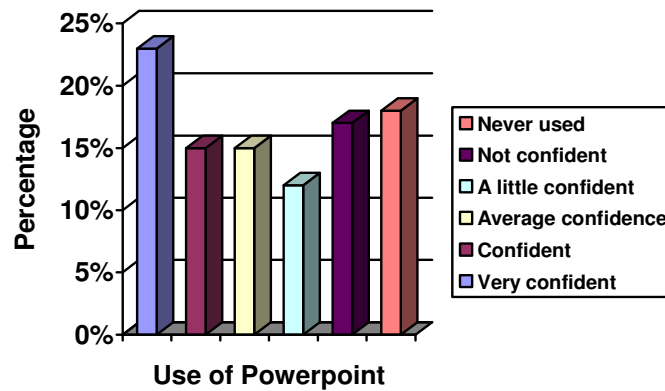
### Use of e-mail

Forty per cent (n=49) were very confident, 21% (n=26) were confident, 15% (n=18) showed average confidence, 4% (n=5) were a little confident, 9% (n=11) were not at all confident and 11% (n=13) never used email or found it not applicable.



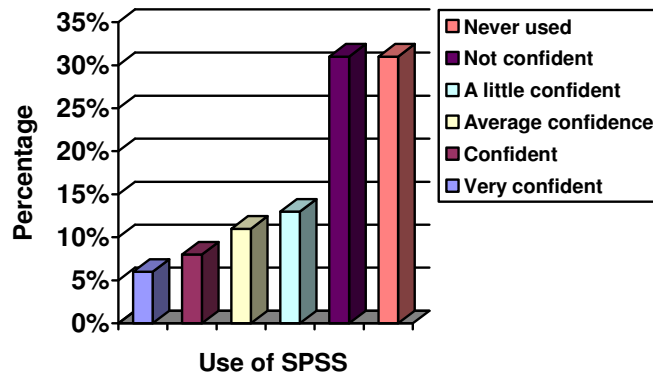
### Use of presentation software (PowerPoint)

Twenty three per cent (n=28) were very confident, 15% (n=19) were confident, 15% (n=18) showed average confidence, 12% (n=15) were a little confident, 17% (n=21) were not at all confident and 18% (n=23) never used presentation software or found it not applicable.



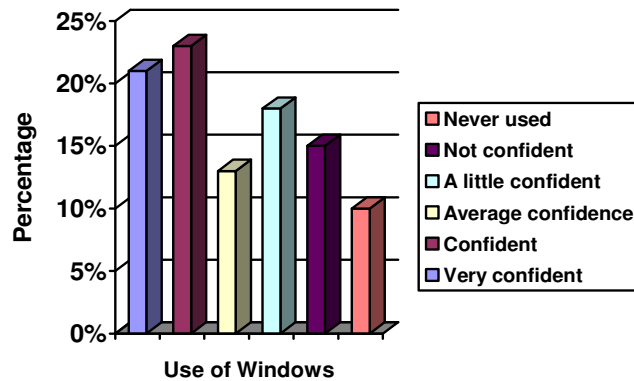
### Use of statistical software (SPSS)

Six per cent (n=7) were very confident, 8% (n=10) were confident, 11% (n=14) showed average confidence, 13% (n=16) were a little confident, 31% (n=39) were not at all confident and 31% (n=38) never used statistical software or found it not applicable.



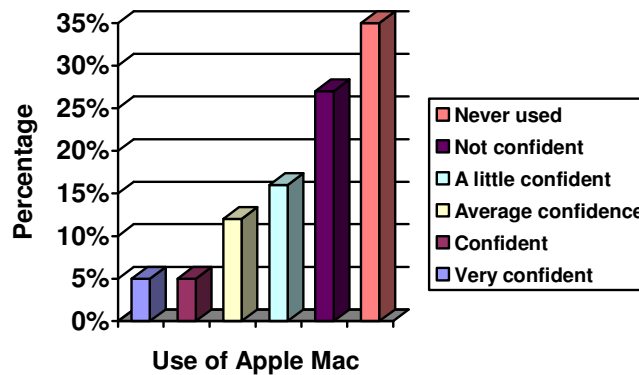
### Use of the Windows operating system

Twenty one per cent (n=26) were very confident, 23% (n=28) were confident, 13% (n=16) showed average confidence, 18% (n=22) were a little confident, 15% (n=18) were not at all confident and 10% (n=12) never used the Windows operating system or found it not applicable.



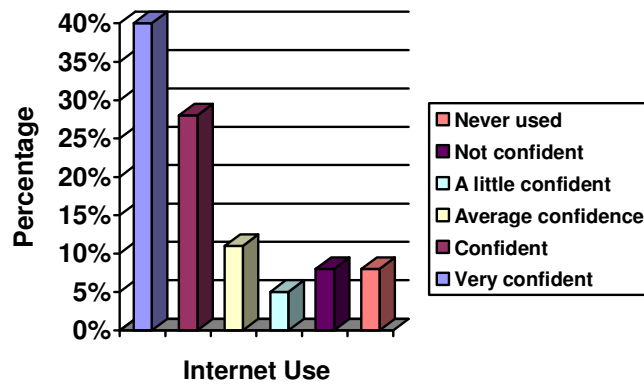
### Use of the Apple Mac operating system

Five per cent (n=6) were very confident, 5% (n=6) were confident, 12% (n=15) showed average confidence, 16% (n=20) were a little confident, 27% (n=33) were not at all confident and 37% (n=42) never used the Apple Mac operating system or found it not applicable.



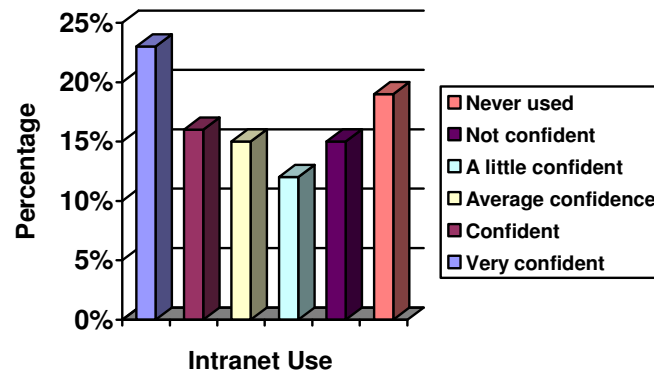
### Use of the internet

Forty per cent (n=50) were very confident, 28% (n=35) were confident, 11% (n=13) showed average confidence, 5% (n=6) were a little confident, 8% (n=10) were not at all confident and 8 % (n=10) never used the internet or found it not applicable.



### Use of the intranet

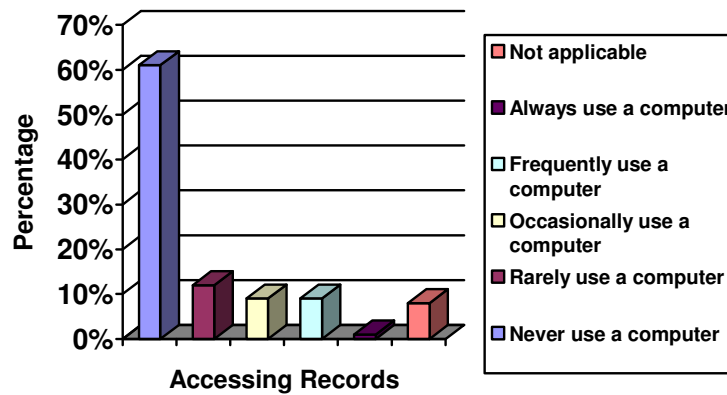
Twenty three per cent (n=28) were very confident, 16% (n=20) were confident, 15% (n=18) showed average confidence, 12% (n=15) were a little confident, 15% (n=19) were not at all confident and 19% (n=23) never used the intranet or found it not applicable.



## Appendix 13 - How often do you use a computer for work related purposes?

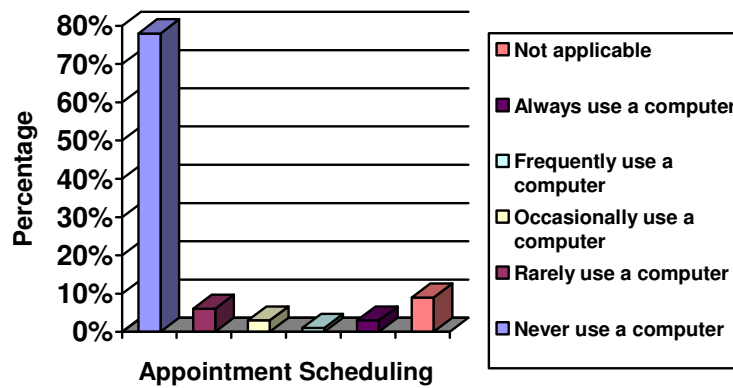
### Accessing patient records

Sixty one per cent (n=76) never used a computer, 12% (n=15) rarely used a computer, 9% (n=11) occasionally used a computer, 9% (n=11) frequently used a computer, 1% (n=2) always used a computer and 8% (n=10) said that this was not applicable.



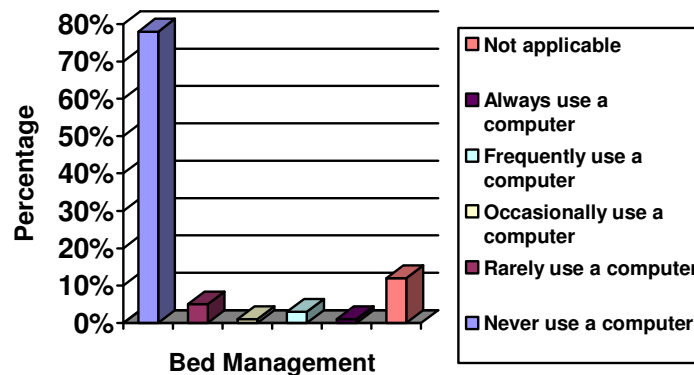
### Appointment scheduling

Seventy eight per cent (n=98) never used a computer, 6% (n=7) rarely used a computer, 3% (n=4) occasionally used a computer, 1% (n=1) frequently used a computer, 3% (n=4) always used a computer and 9% (n=11) said that this was not applicable.



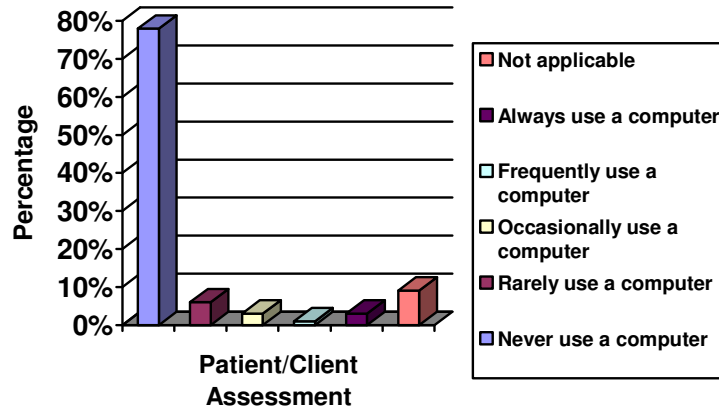
### Bed management

Seventy eight per cent (n=97) never used a computer, 5% (n=6) rarely used a computer, 1% (n=2) occasionally used a computer, 3% (n=4) frequently used a computer, 1% (n=1) always used a computer and 12% (n=15) said that this was not applicable.



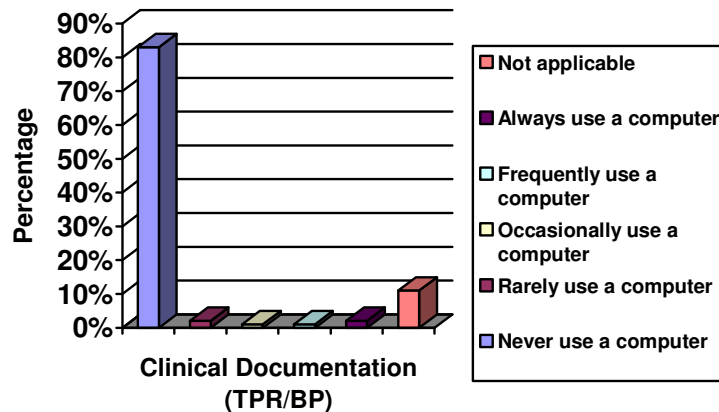
### Patient/client assessment and documentation

Seventy per cent (n=88) never used a computer, 9% (n=11) rarely used a computer, 5% (n=6) occasionally used a computer, 3% (n=4) frequently used a computer, 4% (n=5) always used a computer and 5% (n=11) said that this was not applicable.



### Clinical documentation (TPR, BP)

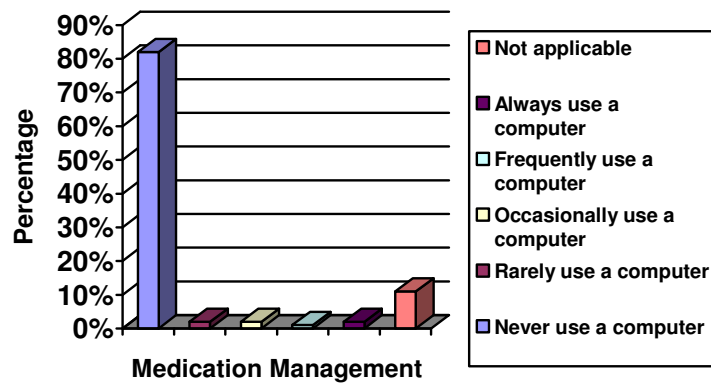
Eighty three per cent (n=104) never used a computer, 2% (n=3) rarely used a computer, 1% (n=1) occasionally used a computer, 1% (n=1) frequently used a computer, 2% (n=2) always used a computer and 11% (n=14) said that this was not applicable.



### Medication management

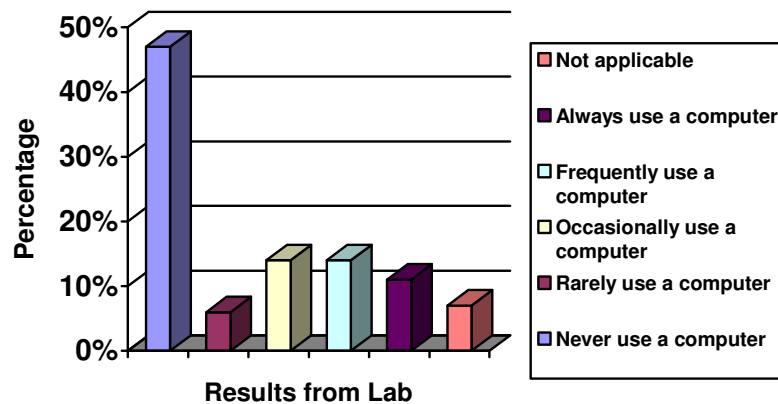
Eighty per cent (n=102) never used a computer, 2% (n=3) rarely used a computer, 2% (n=3) occasionally used a computer, 1% (n=1) frequently used a computer, 2% (n=2) always used a computer and 11% (n=13) said that this was not applicable.





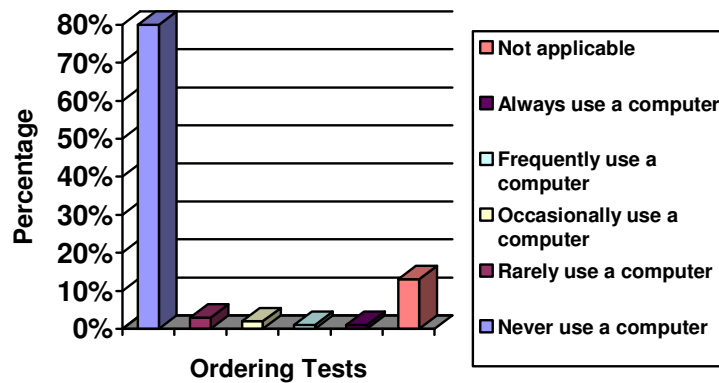
### Results from the laboratory/radiology

Forty seven per cent (n=59) never used a computer, 6% (n=8) rarely used a computer, 14% (n=18) occasionally used a computer, 14% (n=18) frequently used a computer, 11% (n=13) always used a computer and 7% (n=9) said that this was not applicable.



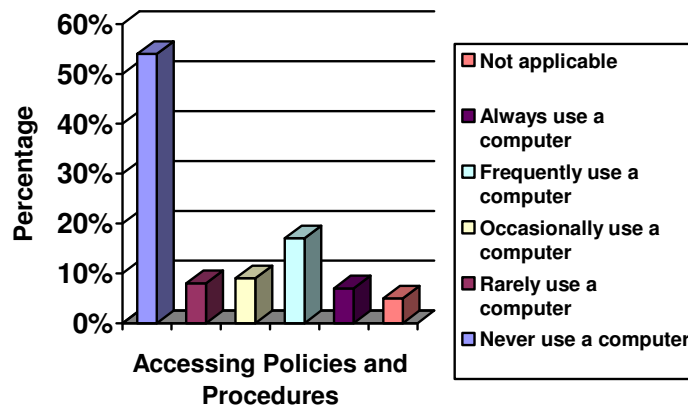
### Ordering diagnostic tests

Eighty per cent (n=101) never used a computer, 3% (n=4) rarely used a computer, 2% (n=2) occasionally used a computer, 1% (n=1) frequently used a computer, 1% (n=1) always used a computer and 13% (n=16) said that this was not applicable.



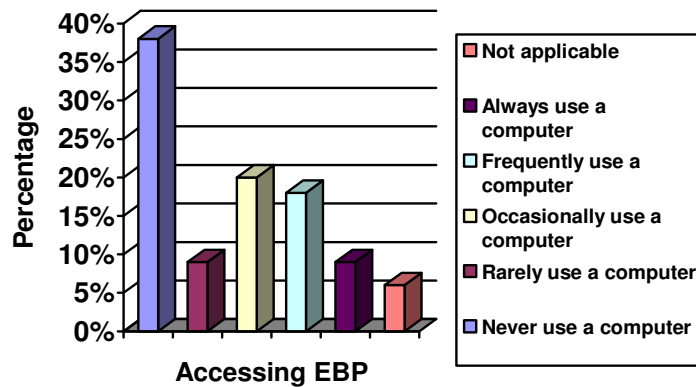
### Accessing policies and procedures

Fifty four per cent (n=67) never used a computer, 8% (n=10) rarely used a computer, 9% (n=11) occasionally used a computer, 17% (n=21) frequently used a computer, 7% (n=9) always used a computer and 5% (n=7) said that this was not applicable.



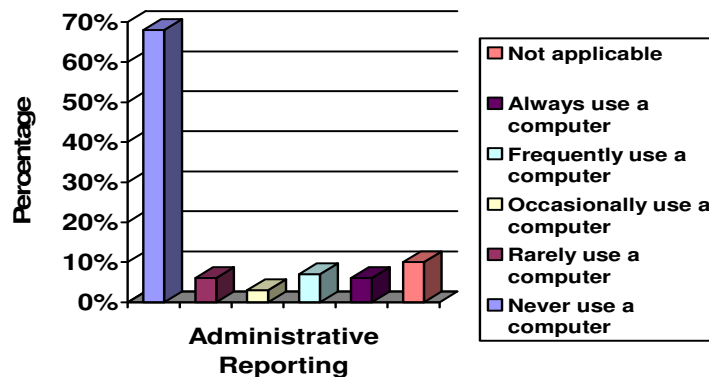
### Accessing evidence based practice

Thirty eight per cent (n=47) never used a computer, 9% (n=11) rarely used a computer, 20% (n=25) occasionally used a computer, 18% (n=22) frequently used a computer, 9% (n=11) always used a computer and 6% (n=8) said that this was not applicable.



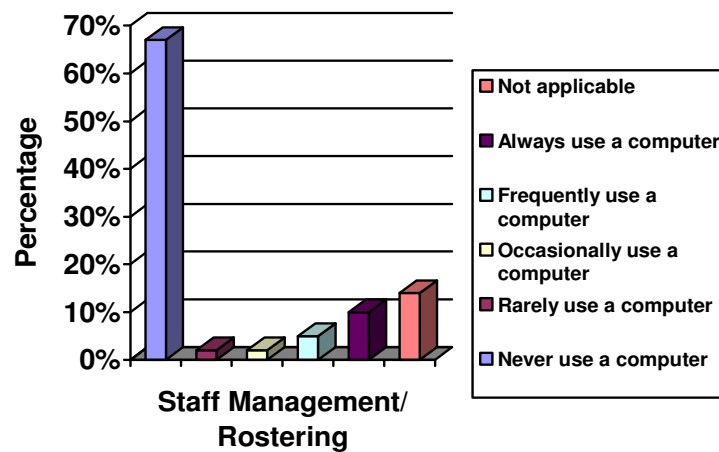
### Administrative reporting

Sixty eight per cent (n=84) never used a computer, 6% (n=7) rarely used a computer, 3% (n=4) occasionally used a computer, 7% (n=9) frequently used a computer, 6% (n=7) always used a computer and 10% (n=13) said that this was not applicable.



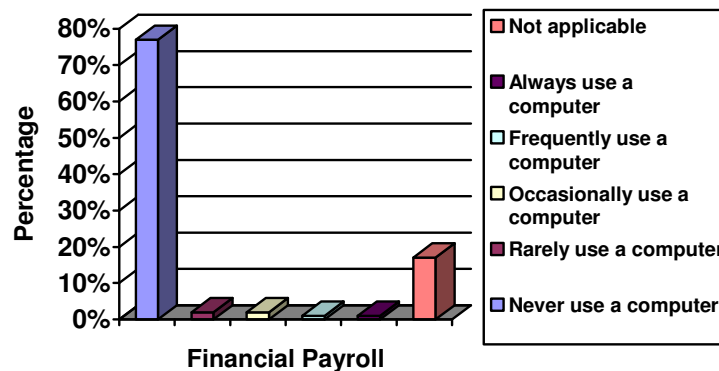
### Staff management/rostering

Sixty seven per cent (n=83) never used a computer, 2% (n=3) rarely used a computer, 2% (n=3) occasionally used a computer, 5% (n=6) frequently used a computer, 10% (n=12) always used a computer and 14% (n=18) said that this was not applicable.



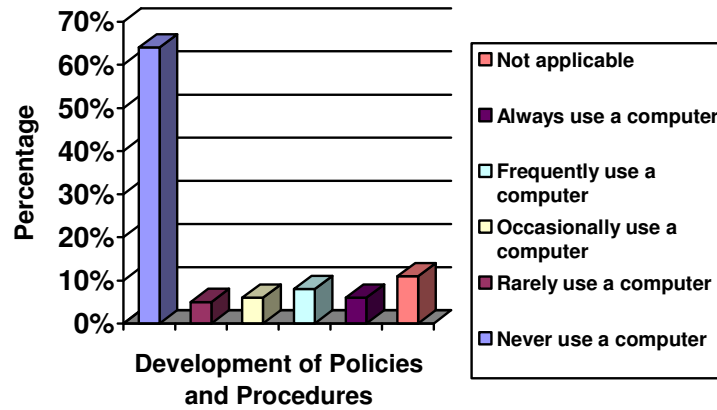
### Financial (payroll/billing)

Seventy seven per cent (n=96) never used a computer, 2% (n=2) rarely used a computer, 2% (n=3) occasionally used a computer, 1% (n=1) frequently used a computer, 1% (n=1) always used a computer and 17% (n=21) said that this was not applicable.



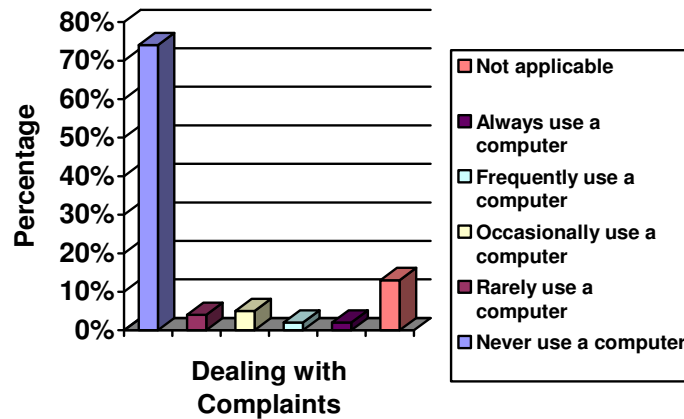
### Development of policies and procedures

Sixty four per cent (n=80) never used a computer, 5% (n=6) rarely used a computer, 6% (n=7) occasionally used a computer, 8% (n=10) frequently used a computer, 6% (n=8) always used a computer and 11% (n=14) said that this was not applicable.



### Dealing with patient/client complaints

Seventy four per cent (n=92) never used a computer, 4% (n=5) rarely used a computer, 5% (n=6) occasionally used a computer, 2% (n=3) frequently used a computer, 2% (n=2) always used a computer and 13% (n=17) said that this was not applicable.



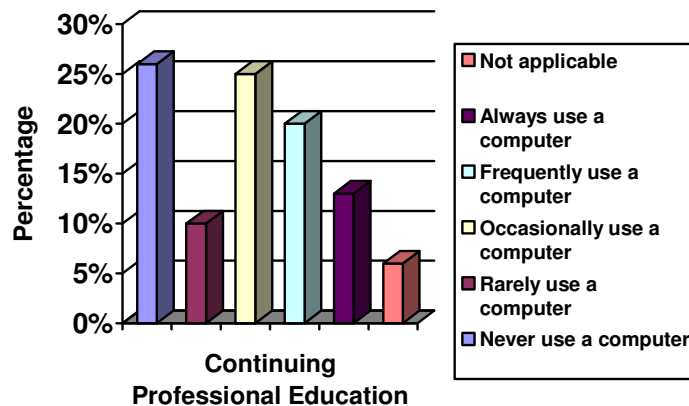
### Recruitment

Sixty nine per cent (n=85) never used a computer, 2% (n=3) rarely used a computer, 6% (n=7) occasionally used a computer, 2% (n=2) frequently used a computer, 3% (n=4) always used a computer and 18% (n=22) said that this was not applicable.



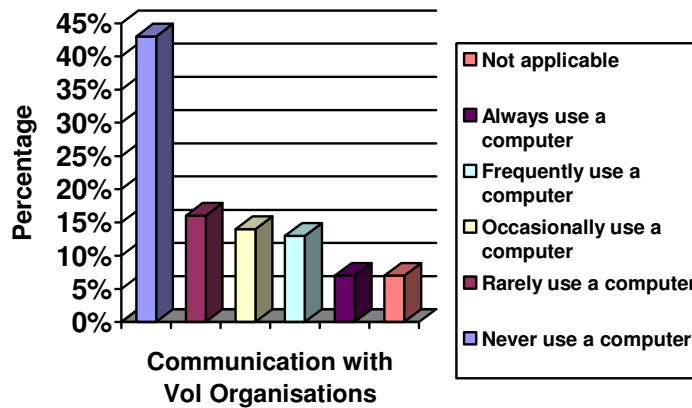
### Continuing professional education

Twenty six per cent (n=33) never used a computer, 10% (n=12) rarely used a computer, 25% (n=31) occasionally used a computer, 20% (n=25) frequently used a computer, 13% (n=16) always used a computer and 6% (n=8) said that this was not applicable.



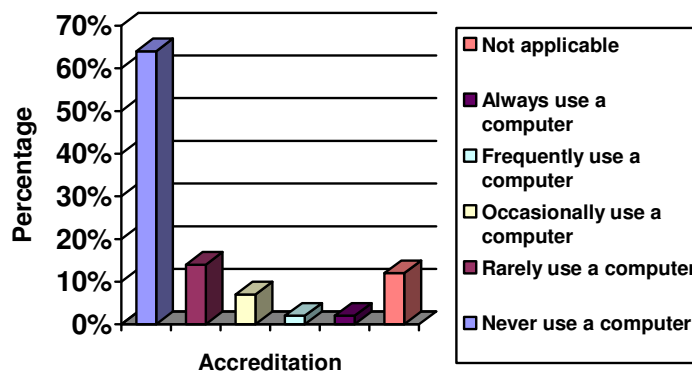
### Communication with professional/voluntary organisations

Forty three per cent (n=54) never used a computer, 16% (n=20) rarely used a computer, 14% (n=18) occasionally used a computer, 13% (n=16) frequently used a computer, 7% (n=8) always used a computer and 7% (n=8) said that this was not applicable.



### Accreditation

Sixty four per cent (n=79) never used a computer, 14% (n=17) rarely used a computer, 7% (n=9) occasionally used a computer, 2% (n=2) frequently used a computer, 2% (n=2) always used a computer and 12% (n=15) said that this was not applicable.



### Other

Sixty five per cent (n=28) never used a computer, 2% (n=1) frequently used a computer, 5% (n=2) always used a computer and 28% (n=2) said that this was not applicable

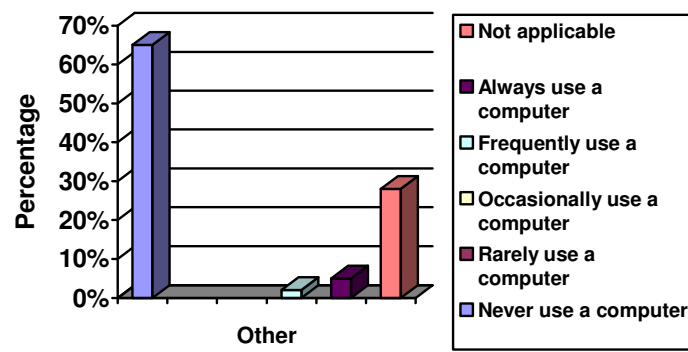


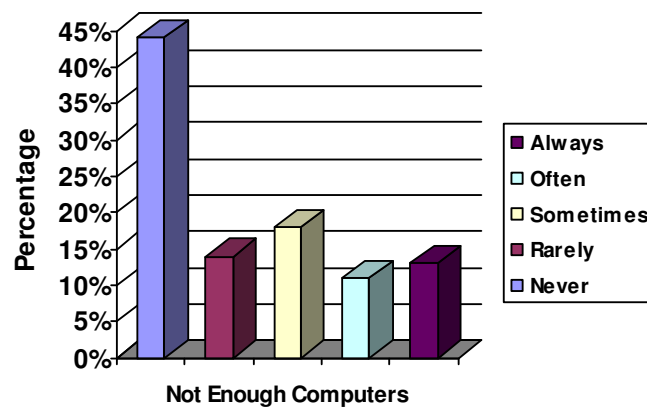
Figure 4.4.39 Other



## Appendix 14 - What restricts your use of a computer?

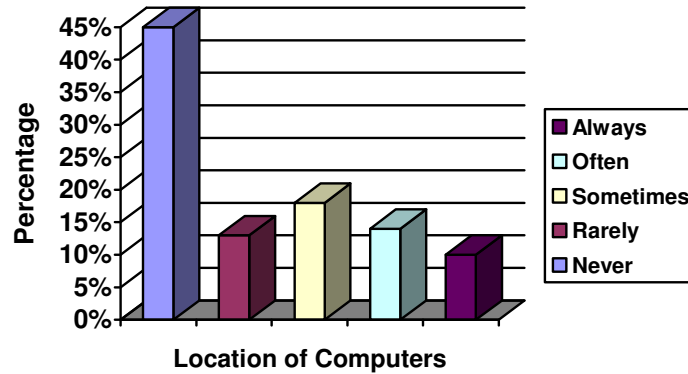
### Not enough computers

Forty four per cent (n=53) replied that this never restricted their use of a computer, 14% (n=17) said that this rarely restricted them, 18% (n=21) said that this sometimes restricted their use, 11% (n=13) replied that it often restricted their use and 13% (n=16) replied that this always restricted their use of a computer.



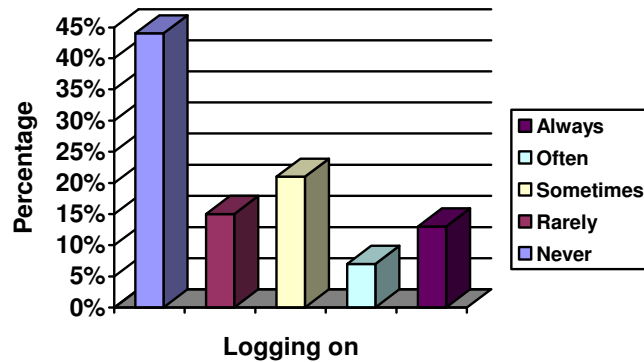
### Location of computers

Forty five per cent (n=53) replied that this never restricted their use of a computer, 13% (n=15) said that this rarely restricted them, 18% (n=21) said that this sometimes restricted their use, 14% (n=17) replied that it often restricted their use and 10% (n=12) replied that this always restricted their use of a computer.



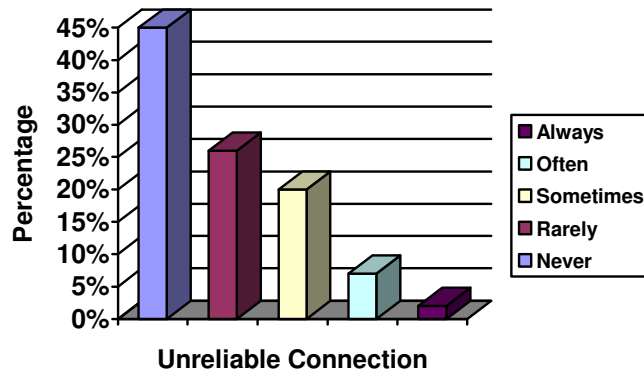
### **It takes too long to log on**

Forty four per cent (n=51) replied that this never restricted their use of a computer, 15% (n=17) said that this rarely restricted them, 21% (n=24) said that this sometimes restricted their use, 14% (n=16) replied that it often restricted their use and 7% (n=8) replied that this always restricted their use of a computer.



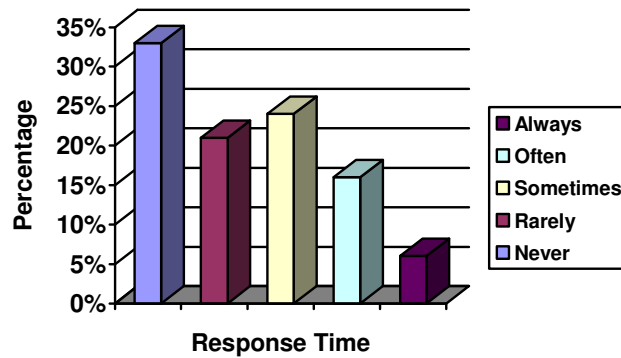
### **Unreliable connection to the network**

Forty five per cent (n=52) replied that this never restricted their use of a computer, 26% (n=30) said that this rarely restricted them, 20% (n=23) said that this sometimes restricted their use, 7% (n=8) replied that it often restricted their use and 2% (n=3) replied that this always restricted their use of a computer.



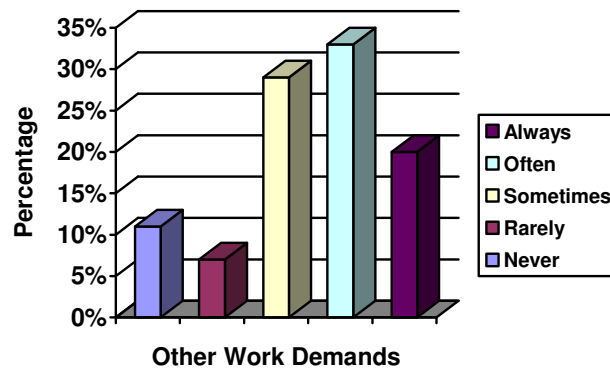
### Response time of the computer

Thirty three per cent (n=38) replied that this never restricted their use of a computer, 21% (n=24) said that this rarely restricted them, 24% (n=28) said that this sometimes restricted their use, 16% (n=18) replied that it often restricted their use and 6% (n=7) replied that this always restricted their use of a computer.



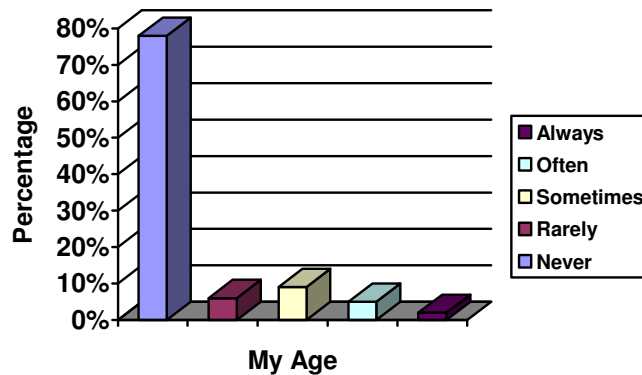
### Too many other work demands

Eleven per cent (n=13) replied that this never restricted their use of a computer, 7% (n=8) said that this rarely restricted them, 29% (n=34) said that this sometimes restricted their use, 33% (n=39) replied that it often restricted their use and 20% (n=23) replied that this always restricted their use of a computer.



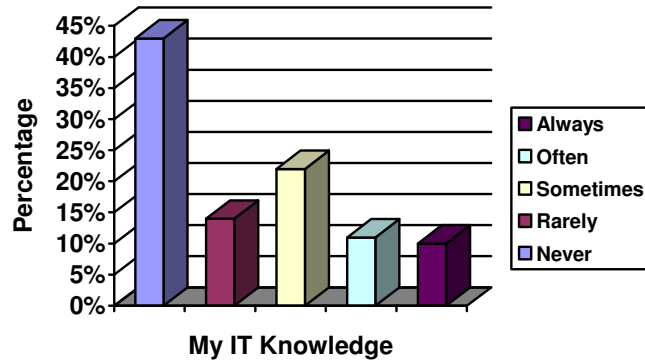
### My age

Seventy eight per cent (n=91) replied that this never restricted their use of a computer, 6% (n=7) said that this rarely restricted them, 9% (n=10) said that this sometimes restricted their use, 5% (n=6) replied that it often restricted their use and 2% (n=3) replied that this always restricted their use of a computer.



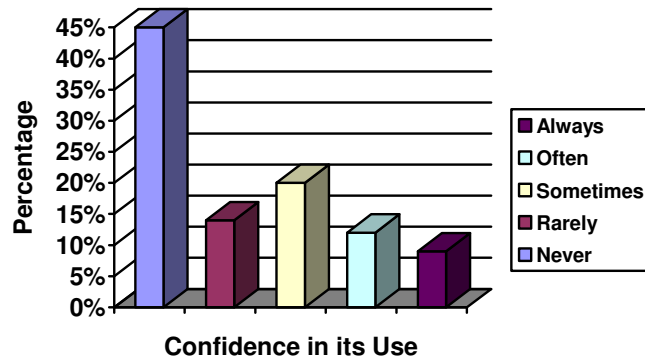
### My IT knowledge

Forty three per cent (n=51) replied that this never restricted their use of a computer, 14% (n=17) said that this rarely restricted them, 22% (n=26) said that this sometimes restricted their use, 11% (n=13) replied that it often restricted their use and 10% (n=12) replied that this always restricted their use of a computer.



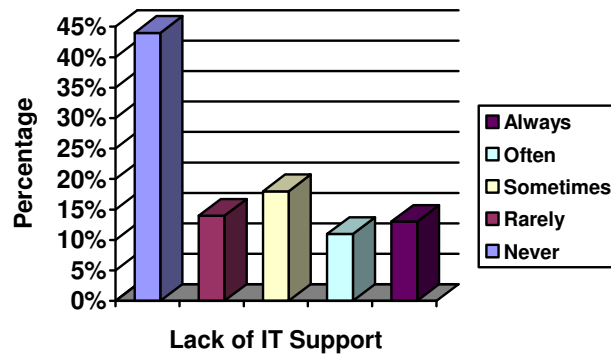
### **My confidence in its use**

Forty five per cent (n=54) replied that this never restricted their use of a computer, 14% (n=17) said that this rarely restricted them, 20% (n=24) said that this sometimes restricted their use, 12% (n=14) replied that it often restricted their use and 9% (n=11) replied that this always restricted their use of a computer.



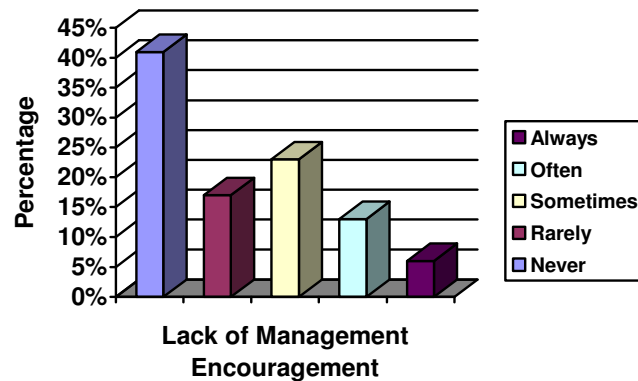
### **Lack of IT support**

Forty per cent (n=48) replied that this never restricted their use of a computer, 16% (n=19) said that this rarely restricted them, 22% (n=26) said that this sometimes restricted their use, 13% (n=16) replied that it often restricted their use and 9% (n=11) replied that this always restricted their use of a computer.



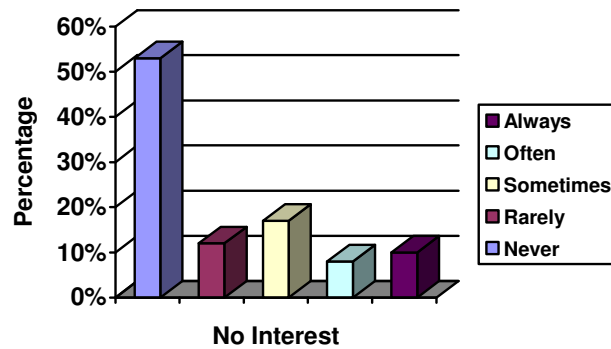
### **Lack of encouragement by management**

Forty one per cent (n=49) replied that this never restricted their use of a computer, 17% (n=21) said that this rarely restricted them, 23% (n=27) said that this sometimes restricted their use, 13% (n=15) replied that it often restricted their use and 6% (n=7) replied that this always restricted their use of a computer.



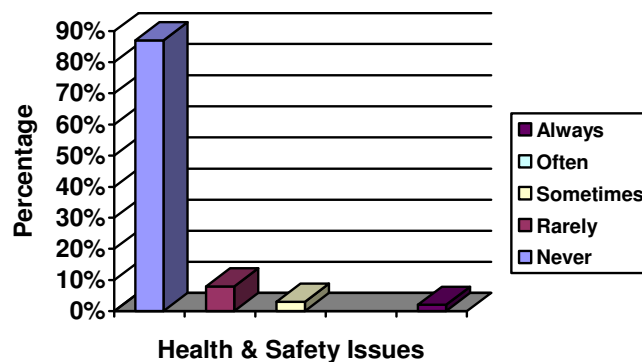
### **No interest**

Fifty three per cent (n=64) replied that this never restricted their use of a computer, 12% (n=14) said that this rarely restricted them, 17% (n=21) said that this sometimes restricted their use, 8% (n=9) replied that it often restricted their use and 10% (n=12) replied that this always restricted their use of a computer.



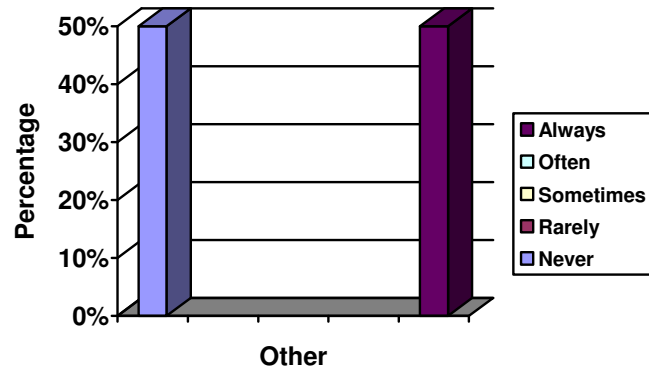
### Concerns about health and safety

Eighty seven per cent (n=102) replied that this never restricted their use of a computer, 8% (n=9) said that this rarely restricted them, 3% (n=4) said that this sometimes restricted their use, no participant replied that it often restricted their use and 2% (n=3) replied that this always restricted their use of a computer.



### Other

Fifty per cent (n=7) replied that this never restricted their use of a computer, 50% (n=7) replied that this always restricted their use of a computer.

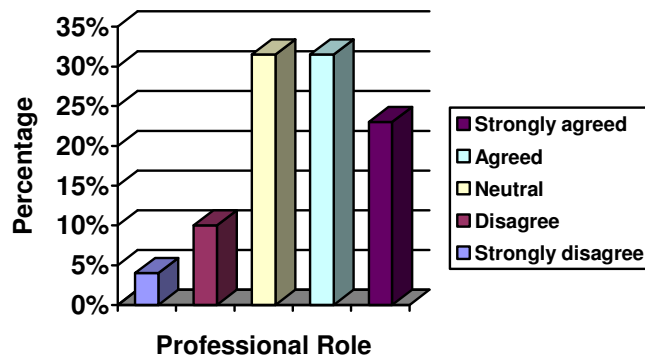




## Appendix 15 - Attitudes towards the use of IT at work

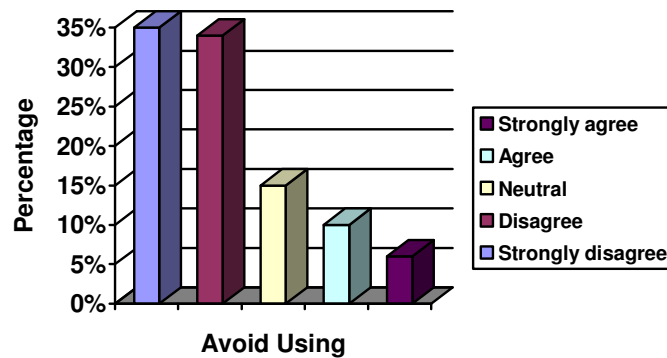
### **I feel that computers in general contribute to my professional role as a mental health nurse**

Four per cent (n=5) strongly disagreed with this statement, 10 % (n=12) disagreed with this statement, 31.5% (n=39) were neutral, 31.5% (n=39) agreed with this statement and 23% (n=29) strongly agreed with this statement.



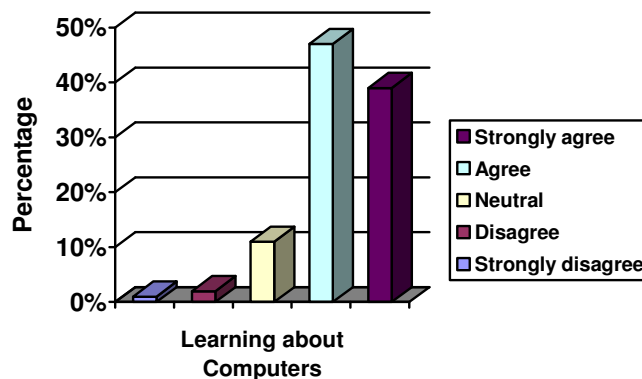
### **I avoid using computers whenever I can**

Thirty five per cent (n=44) strongly disagreed with this statement, 34% (n=42) disagreed with this statement, 15% (n=19) were neutral, 10% (n=12) agreed with this statement and 6% (n=7) strongly agreed with this statement.



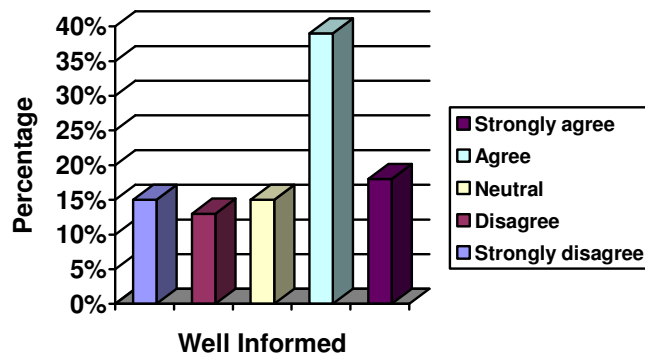
### **Learning about computers is essential for nurses working in today's health service**

One per cent (n=2) strongly disagreed with this statement, 2% (n=3) disagreed with this statement, 11% (n=13) were neutral, 47% (n=58) agreed with this statement and 39% (n=49) strongly agreed with this statement.



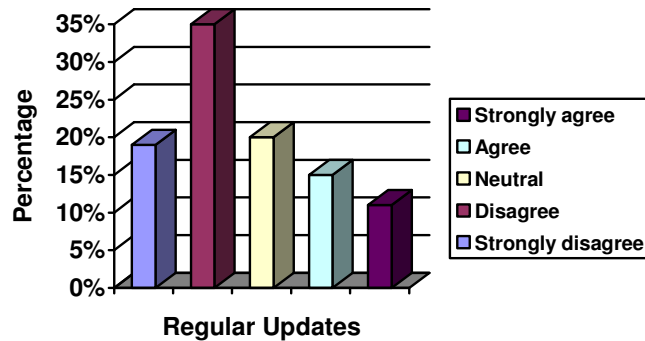
### **I have been well informed about the introduction of the WISDOM system**

Fifteen per cent (n=19) strongly disagreed with this statement, 13% (n=16) disagreed with this statement, 15% (n=19) were neutral, 29% (n=49) agreed with this statement and 18% (n=22) strongly agreed with this statement.



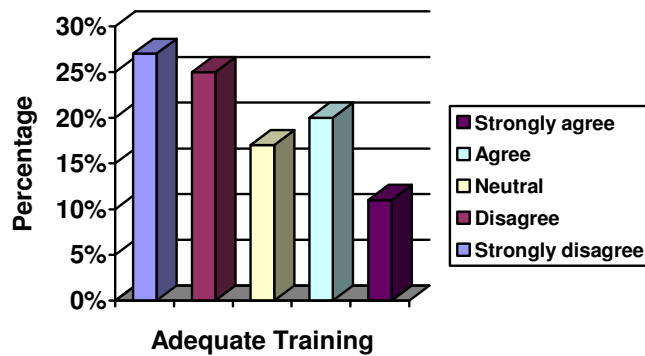
### **I was regularly given updates about the progress of the WISDOM project**

Nineteen per cent (n=23) strongly disagreed with this statement, 35% (n=44) disagreed with this statement, 20% (n=25) were neutral, 15% (n=19) agreed with this statement and 11% (n=14) strongly agreed with this statement.



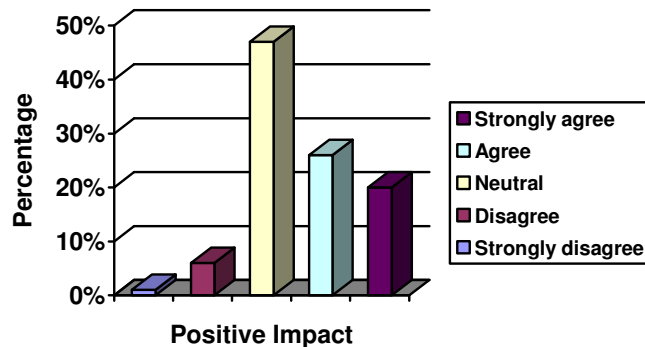
### **I have received adequate training in order to operate the WISDOM system**

Twenty seven per cent (n=33) strongly disagreed with this statement, 25% (n=31) disagreed with this statement, 17% (n=21) were neutral, 20% (n=24) agreed with this statement and 11% (n=13) strongly agreed with this statement.



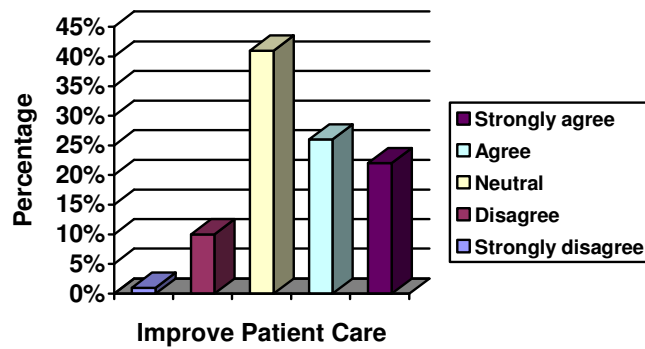
**The WISDOM system will have a positive impact on the delivery of the mental health service**

One per cent (n=2) strongly disagreed with this statement, 6% (n=8) disagreed with this statement, 47% (n=58) were neutral, 26% (n=32) agreed with this statement and 20% (n=25) strongly agreed with this statement.



**The WISDOM system will improve and add to the delivery of patient care**

One per cent (n=1) strongly disagreed with this statement, 10% (n=12) disagreed with this statement, 41% (n=51) were neutral, 26% (n=34) agreed with this statement and 22% (n=27) strongly agreed with this statement.



**I believe that my level of computer literacy is restricting my career development**

Twenty five per cent (n=32) strongly disagreed with this statement, 45% (n=56) disagreed with this statement, 14% (n=17) were neutral, 11% (n=14) agreed with this statement and 5% (n=6) strongly agreed with this statement.

