

Nursing Workforce Planning Project

undertaken by

The Adelaide and Meath
Hospitals, Incorporating
The National
Children's Hospital
and

Beaumont Hospital
Dublin
2007



Acknowledgements

This report details a project undertaken by the Nursing Service of the Adelaide and Meath Hospital Incorporating the National Children's Hospital and Beaumont Hospital Dublin. Workforce planning features high on the agenda within the Health Reforms Project, and hence warranted specific attention from Health Service providers. The project was unique as it incorporated the measurement of four specific components of care provision including: patient dependency, activity analysis, quality of service delivery and current staffing complements during the period of the project. Subsequently on analysis of this data, it was utilised in order to translate into recommendations for changes in work processes and staffing requirements.

The project was supported by the Nursing Service in the Adelaide and Meath Hospital Incorporating the National Children's Hospital and Beaumont Hospital. In undertaking this project, the Nursing Services in both hospitals invested significant resources in the project in ensuring its successful completion and achievement of desired outcomes within an agreed timeframe.

Indeed as a direct result of this landmark project it is expected that this information will be transferable to other Health Care Providers, clearly demonstrating the benefit of undertaking a project of this magnitude.

We would especially like to thank the project teams from both hospitals for the accomplishments of this project. We would also like to thank Professor Keith Hurst for his permission to utilise the measurement tools and his data analysis.

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Contents

GLOSSARY	7
EXECUTIVE SUMMARY	11
PROJECT TEAM.....	13
PROJECT CHAIRPERSONS	13
PROJECT TEAM MEMBERS	13
AMNCH.....	13
BEAUMONT	14
CHAPTER ONE	15
BACKGROUND TO THE PROJECT	16
AMNCH.....	17
BEAUMONT HOSPITAL	18
TERMS OF REFERENCE	18
PROJECT SCOPE.....	19
CHAPTER TWO.....	21
INTRODUCTION	22
REPORT OF THE COMMISSION ON NURSING.....	22
SKILL-MIX	23
WORKFORCE PLANNING	24
THE LINK BETWEEN STAFFING LEVELS AND QUALITY	24
WORKFORCE PLANNING METHODS.....	25
Professional Judgement Method.....	25
Nurses per Occupied Bed	26
Acuity-Quality	26
Timed-Task.....	26
Regression-Based System	26
INTERNATIONAL EXPERIENCE	27
Australia	27
Scotland.....	27
Belgium	27
THE SITUATION IN IRELAND	28
CONCLUSION	28
CHAPTER THREE	29
FOUR COMPONENTS OF THE PROJECT	30
1.PATIENT DEPENDENCY AND OCCUPANCY	30
Tool.....	30
Process.....	30
2WORKLOAD MEASUREMENT/ NURSING ACTIVITY ANALYSIS.....	31
Tool.....	31
Process.....	312
3QUALITY AUDIT	32
Tool.....	32
Process.....	33
4TIME-OUT/ STAFFING ESTABLISHMENTS	34
COLLATION OF DATA.....	35
ADDRESSING ISSUES OF BEST PRACTICE	35
VALIDITY AND RELIABILITY	36
PILOT STUDY.....	36
CHAPTER FOUR	37
DATA ANALYSIS AND FINDINGS	39
PSYCHOMETRIC ISSUES.....	39
Table 1. Direct Nursing Care Time Ratios per Patient Dependency	39
PATIENT OCCUPANCY AND DEPENDENCY	40
Table 2.Patient Occupancy and Dependency	40
NURSING WORKLOAD.....	41

Table 3. Ward and Bed Workloads	41
NURSING ACTIVITY.....	42
Table 4a. Nursing Activity.....	43
Table 4b. Nursing Activity by Grade.....	44
NURSING QUALITY.....	45
Table 5. Nursing Quality Survey (NQS) Scores	46
TIME OUT/STAFFING ESTABLISHMENTS.....	47
Table 6. Time-out	47
DISCUSSION ON THE FINDINGS.....	48
CHAPTER FIVE	50
RECOMMENDATIONS FROM PROFESSOR KEITH HURST ON NURSE STAFFING AND GRADE MIX..	51
Table 7. Ward Staffing per Occupied Bed and Grade-mix	51
RECOMMENDATIONS OF THE HEALTH SERVICE PROVIDERS	52
Desired outcome one	52
Desired outcome two.....	52
Desired outcome three	53
Desired outcome four.....	53
Desired outcome five.....	53
Nurse Dependency System	53
Activity Analysis.....	54
Quality	54
Time-out/Staffing establishments	54
Recommendations on staffing changes.....	55
REFERENCES	56
Appendices	58
APPENDIX 1 WARD DESCRIPTIONS	58
APPENDIX 2 GANT CHART	60
APPENDIX 3 MEETING MATRIX.....	62
APPENDIX 4 NURSE DEPENDENCY SYSTEM SCORING INSTRUCTIONS	63
APPENDIX 5 NURSE DEPENDENCY EXCEL SPREADSHEET	64
APPENDIX 6 ACTIVITY ANALYSIS DATA COLLECTION	65
APPENDIX 7 NURSING ACTIVITY SUMMARY SHEET	66
APPENDIX 8 QUALITY DATA SUMMARY SHEET (TOTALS EXAMPLE)	68
APPENDIX 9: EXCEL DATABASE FOR DATA ENTRY EXAMPLE.....	69

Glossary

- Activity analysis:*** Recording nursing activity (usually) by non-participant observation.
- Acuity:*** Average workload per occupied bed, used as a nursing benchmark. Associated with the workload index (WLI).
- Associated work:*** Non-nursing duties such as washing crockery.
- Bed occupancy:*** The number of patients in a ward expressed as a percentage of bed numbers.
- Bottom-up workforce planning methods:*** Staffing levels calculated using factors known to influence a nurses' workload. These could be the number of stroke patients or the number of first-day postoperative patients in the ward.
- Demand side:*** A shorter way of determining how many nurses are needed.
- Direct care:*** Hands on care by nurses; for example, measuring a patient's temperature.
- Empirical data:*** Information collected systematically by, for example, observation; the opposite of anecdotal.
- Establishment:*** An agreed level of staffing for a ward, unit, hospital, etc. The number of nurses working in the hospital is called the nursing establishment.

Indirect care: Individual but remote patient care that is one step removed from the bedside; for example, writing a nursing report about a patient.

Non-participant

observation: The role played by an independent observer; the purpose is to collect data objectively.

Patient dependency: A measuring and classification system comprising of two or more categories arranged in a hierarchical manner that indicate the amount of care patients receive from nursing staff.

Unproductive time: Meal and drinks breaks, ‘breathing’ time, personal study and unoccupied time.

Regression analysis: A statistical technique for identifying the main factors that influence the relationship between variables such as those that predict the number of nurses needed in a ward.

Reliability: The strength a research instrument has in terms of consistency; for example, a rule should give the same measure of the same piece of wood every time.

Skill mix: The different types of practitioners making up the ward’s establishment. Nurse managers strive to achieve the ideal mix; one that maintains or improves the quality of care at the least cost. Grade mix is sometimes used as a synonym for skill mix but the former includes only nurses. The latter, on the other hand, may include other health professionals.

Staff in post: Or actual nursing establishment in a ward or unit.

Staffing levels: The actual or ideal number of nurses working in a ward or department expressed in whole time equivalents (WTEs).

- Supply side:*** A shorter way of determining where nurses come.
- Time-out:*** Leave of all kinds including: sickness, annual leave, compassionate, uncertified, certified, maternity, study, etc. The UK average is 22%; that is, one nurse in five is away from the ward at any given time.
- Top-down methods:*** Staffing levels calculated using predetermined formulas compiled from widespread health care data; for example, the number of nurses per occupied bed.
- Validity:*** Evidence that a research instrument measures what it is supposed to measure, for example, that a patient classification instrument is an accurate measure of a patient's dependence upon the nursing staff.
- Variables:*** Literally anything that is allowed to vary, for example, bed occupancy.

***WTE (Whole Time Equivalent)
or FTE (Full Time Equivalent):***

One way of expressing the actual numbers of nurses in an establishment. One nurse working 39 hours a week is one WTE. Two nurses working part-time; for example, one nurse working 20 hours (0.53 WTE) the other working 19 (0.47 WTE) hours a week is also one WTE.

Workload index (WLI):

A figure indicating the nursing work required to meet patients' needs in a given situation. Dividing the WLI by the ward's number of occupied bed is known as the acuity. Both WLI and acuity are necessary for bench marking purposes

NDS: Nurse Dependency System

CNM: Clinical Nurse Manager

NPDD: Nurse Practice Development Department

ADoN: Assistant Director of Nursing

AMNCH: Adelaide and Meath Hospitals, Incorporating the National Children's Hospital

DATH's: Dublin Academic Teaching Hospitals

NHS: National Health Service

Executive summary

This report emanates from significant discussions and debates regarding the appropriate development and utilisation of the health care staff in order to deliver the best standard of care for our patients.

Workforce planning is a key part of the Health Service Reforms Programme. This report details a project undertaken by the Nursing Service of the Adelaide and Meath Hospital Incorporating the National Children's Hospital and Beaumont Hospital Dublin.

A review of the literature on work force planning was conducted.

Measurement of four specific components of care provision were recorded ; patient dependency, activity analysis, quality of service delivery and current staffing complements during a one month period in 2006.

Following data analysis some very positive findings were revealed. A number of areas for improvement that may be easily implemented at local level were also identified. Indeed as a direct result of this project it is expected that this information will be transferable, relevant and applicable to numerous Health Care Providers.

Project team

This project was initiated and supported by the Directors of Nursing in the project sites:

Ms. Ann Donovan, Director of Nursing, AMNCH.

Ms. Marie Keane, Director of Nursing, Beaumont Hospital.

Project Chairpersons

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Chapter 1

Project Background

Background to the project

In response to service need, the Health Reform Programme and both current and future demands, this project was driven by both Directors of Nursing in addressing the key issue of workforce planning. Cognisance was also taken in light of the DATHs Report (2000), which identified skill mix in nursing as one of five factors requiring further examination.

In a further report, the Skill Mix Sub-Group Report (2001) made a number of recommendations including:

1. That there is the implementation of a systematic skill mix process across the DATHs.
2. A standardised nurse demand method is selected which will facilitate rather than dictate decisions on nurse staffing requirements, and include activity analysis in addition to measures of quality of care.
3. This method needs to be suitable to the local situation and be capable of adaptation in the light of changing service needs.
4. There needs to be ongoing education of nursing personnel in relation to the method used.
5. That the findings of the working group on “Effective Utilisation of Professional Skills of Nurses and Midwives” (DOHC, 2001) be taken into account.

In order to examine and determine a process of workforce planning, capable of responding to changing service needs, both current and future, the Directors of Nursing of AMNCH and Beaumont Hospitals, collaborated jointly in a venture to achieve this goal.

The first step in this process involved an in-depth review of the current methods and procedures to measure nursing workload, in order to develop a method of workforce planning. From this extensive review, it was established that the work carried out by Professor Keith Hurst in the United Kingdom for the NHS was the most effective, efficient and applicable method of workforce measurement to date. Following initial contact with Professor Hurst, a richer and deeper understanding of his methodologies led to the decision to adopt these methods for this particular project. Indeed the widespread implementation of Professor Hurst's methods throughout the NHS, followed with the subsequent establishment of a national dataset is evidence of the adaptability, applicability, validity and reliability of these methods.

Based upon the recommendations and expertise of Professor Keith Hurst, three Clinical areas within each of the two Hospital sites were chosen for inclusion in this particular project. As part of the project each clinical area was described in detail (Appendix 1). The following is a brief description of each of the hospital sites involved in the project.

AMNCH

The Adelaide and Meath Hospital, Dublin, Incorporating The National Children's Hospital (AMNCH) opened in June 1998. It is a modern and progressive hospital, serving the healthcare needs of approximately 500,000 adults and children in Tallaght, Dublin South West, Wicklow and Kildare. It consists of 580 beds, of which 347 are in-patient adult beds. Central to the philosophy of this hospital is meeting the individual health care needs of patients.

The AMNCH is a teaching hospital linked to the University of Dublin, Trinity College Dublin (TCD) providing a clinical learning environment for nurses, doctors and allied health professionals. In conjunction with the University of Dublin, Trinity College Dublin, AMNCH provides the clinical input for the 4 year BSc (Hons) Nursing Programme and in 2007 the 4½ year integrated General and Childrens programme.

The AMNCH has links with the Institute of Technology, Tallaght and collaborates with this centre in providing educational opportunities for staff.

Beaumont Hospital

Beaumont Hospital opened on November 29th 1987. Beaumont Hospital has a complement of 620 beds with National Specialties including Neurosurgery, Renal and Pancreatic Transplantation and Cochlear Transplantation. It is also a Regional Centre for Ear, Nose and Throat and Gastroenterology. The hospital serves a population of approximately 250,000 people, but is also the National Speciality treatment centre for the specialities outlined above.

Beaumont Hospital is the principal undergraduate and post graduate medical training and research centre for the Royal College of Surgeons in Ireland.

In conjunction with Dublin City University (DCU) Beaumont Hospital provides the clinical input for the 4 year BSc (Hons) Nursing Programme .

The hospital also provides a number of Post Graduate Programmes which are affiliated to the Royal College of Surgeons in Ireland and Dublin City University.

Both AMNCH and Beaumont hospital strive to provide the highest quality of patient care that improves both clinical outcomes and the quality of life.

Terms of Reference

The terms of reference for the project were as follows:

- The project will measure four specific components:
 - ◆ Patient dependency and occupancy.
 - ◆ Workload measurement /Nursing activity analysis.
 - ◆ Nursing quality audit.
 - ◆ Time-out/ Staffing establishments

- Each component of the project will have a specific and identified agreed timeframe, (Appendix 2)

- All processes within the project will be managed efficiently and effectively (eg. utilisation of the meeting matrix model, Appendix 3)
- The group will report back to the Directors of Nursing with the findings in order to agree recommendations.
- The group will consult with Professor Keith Hurse in Leeds University, who will complete the data analysis.

Access to each Hospital site

The process of negotiating access to a project site is often complex and challenging (Cormack 1996). In this case, permission was requested from, and granted by the Directors of Nursing of both Hospital sites. Once permission was obtained, the Clinical Nurse Managers (CNM) of the six clinical areas involved in the study were initially addressed in writing in order to explain the study. In addition to written information, each of the Clinical Nurse Managers (CNM) were invited to become members of the project team. As a direct result of the enthusiasm and commitment on the behalf of the Clinical Nurse Managers to the development of practice, each of the Clinical Nurse Managers (CNM) became full members of the project team. This feature of the project impacted positively to the success of the project.

Project Scope

The scope of the project was four fold.

- ◆ Patient dependency and occupancy.
- ◆ Workload measurement /Nursing activity analysis.
- ◆ Nursing quality audit.
- ◆ Time-out/ Staffing establishments.

For the purposes of this particular project the data collection phase for all four components was conducted over one calendar month which was in April 2006.

It is necessary for the readers of this report to gain a complete and full understanding of the tools, methods and processes utilised in this project. It will equip the reader to comprehend the challenges presented in the interpretation of the results and subsequent recommendations from the completion of this project, which require careful examination and consideration.

Hence, the following section outlines in detail how each of the four components were completed.

Chapter 2

Literature Review

Literature Review

Introduction

In the year 2000 there were 42,616 Registered General Nurses registered on the active file of An Bord Altranais. This equates to 39% in percentage terms of the health workforce. According to Buchan et al 2000, healthcare systems spend over 70% of their budget on staff. Therefore, it is paramount that this valuable resource is utilised effectively and efficiently to meet the healthcare needs of the population. Healthcare Service managers aim to deliver a high quality patient centred service. This can be on occasions both a complex and difficult task as it requires a clear understanding of the healthcare system. The ultimate aim is to provide improved patient outcome with the best resources.

In completing this review, an examination of international approaches to workforce planning was also performed.

Report of The Commission on Nursing

The Report of The Commission on nursing (1998 para 7.63) made two recommendations; firstly:

“to examine opportunities for the increased use of care assistants and other nursing staff”

(Commission On Nursing, 1998)

and secondly,

“to examine the development of appropriate systems to determine nursing staffing levels”

(Commission On Nursing, 1998).

The report to support the first recommendation was published in 2001; Effective Utilisation of Professional Skills of Nurses and Midwives (2001). The second terms of reference in this report and second recommendation from The Commission of nursing was published in 2005; the Report of the Working Group to examine the development of appropriate systems to determine nursing and midwifery staffing levels (2005).

Skill-Mix

It is vital that healthcare professionals and managers aim to identify the most effective mix of staff. Changes in nurse education coupled with the recommendation from the Report of the Commission on Nursing (1998) have largely impacted on the introduction of skill-mix. The DATH's Skill Mix Group Report (2001) acknowledges the fact that health care assistants have in part replaced student nurses in many areas.

According to Buchan 2001;

“Skill – mix is the method of achieving the “best” mix of staff and skills, required to deliver a defined level of care in a defined area of organisational activity”

(Buchan, 2001).

The International Council of Nurses states that

“there is no optimum skill mix, and attempts to reach the best possible standard must be an on-going and creative process”

(ICN, 1994:27)

Skill-mix can be a contentious issue. This is re-iterated by McKenna (1995) who suggests that

“it is not unreasonable for some people to question whether a rich skill mix of mostly qualified staff gives a higher quality care than a cheaper skill-mix of mostly unqualified staff”

(McKenna, 1995 p452).

The American Nurses Association (ANA) 1999 suggested in an attempt to examine skill-mix; it is imperative to examine the relationships between staffing and quality of patient care which include:

- What is the relationship between the organisation and delivery of nursing care and patient outcomes?
- What are the unique skills and the mix of registered nurses and other nursing and ancillary staff that impact on patient outcomes?

- What organisational and delivery of care variables are related to specific patient outcomes?

Workforce planning

According to the Department of Health UK, workforce planning is:

“A planning process undertaken to ensure there are sufficient staff available at the right time, with the right skills, diversity and flexibility, in the right place, to deliver high quality care to meet the needs of individuals and communities”

(Department of Health UK, 2000)

The Link between Staffing Levels and Quality

McNeese-Smith and Donna (1999) carried out an analysis of staff nurse job satisfaction and dissatisfaction. A figure of 47% of the nurses interviewed described “feeling overloaded” as one of the main causes of job dissatisfaction. What is very interesting; however, is that many of the nurses linked being overloaded with work to poor quality. The link between poor quality and increased workload is not new. In 1999, Williams cited nurses as complaining that they have an ever increasing workload without any commensurate increase in staffing, as a result of which they are unable to provide what they consider to be an acceptable standard of care. Williams (1999) suggests that there is much evidence to support the claim that workload is increasing in volume and intensity. This is due to shorter lengths of stay with resultant increases in patient dependency, patients for admission arriving prior to the previous occupier being discharged (the nurse has more patients than beds) and increasingly sophisticated medical procedures requiring additional nursing support (Williams, 1999). Indeed intensity of work due to such factors has dramatically increased over the past two decades (Cavouras, 2002).

The following is a recommendation from the working group who were involved in examining the development of appropriate systems to determine nursing and midwifery staffing levels.

Quality indicators must be incorporated into the method/system for determining staffing levels. Nurses and midwives must have reliable and valid information enabling them to demonstrate how nursing and midwifery resources affect the quality of patient care.

Workforce Planning Methods

In 2002, Professor Keith Hurst in the U.K completed a systematic review of over 500 articles related to estimating the size and mix of nursing teams. Hurst believes that it is not just quality and cost of care which is affected by inappropriate staffing levels, but, also job satisfaction and nurse education. His work resulted in the publication of *Selecting and Applying Methods for Estimating the Size and Mix of Nursing Teams* (Hurst 2002). This publication examines five commonly used workforce planning methods.

1. Professional Judgement (Telford) approach
2. Nurses per occupied bed (also known as the top-down method)
3. Acuity-quality (also known as the bottom-up method)
4. Timed-task/activity approaches
5. Regression-based system

Professional Judgement Method

The Telford consultative approach was first developed in 1979. This simple method uses professional judgement to agree the most appropriate size and mix of ward nursing teams. It involves the nurse-in-charge assessing the number of nurses required per shift and from this calculating the number of working hours needed per week (Arthur & James, 1994). Additional time is added on for annual leave, sick leave etc. From this the total number of whole time equivalents (w.t.e.) can be calculated.

The Telford method appears to be the foundation stone of nursing and midwifery workload assessment. The main disadvantage of this method is that it does not explain the link between quality and staffing levels.

Nurses per Occupied Bed

Another simple method of determining the number of nursing staff is the average nurse's per occupied bed (NPOB) method. This method took no account of differences in workload and is now considered out dated and should not be the sole basis for determining staffing levels (Hurst, 2002)

Acuity-Quality

This method is useful for wards where the number and acuity of patient's change (Hurst 2002). It also takes into consideration patient dependency and nursing workload. Patients are categorised according to their level of 'dependency'. Criteria for Care is the most well known of these methods (Ball et al, 1984). This method is attractive as it focuses on patient's needs. If this method is combined with a quality index measure such as Monitor (Goldstone et al, 1983), it can also examine standards of care over a specified period of time.

The acuity-quality approach is presently the most inclusive method in meeting patient needs (Hurst, 2002). The main advantages of this method are that nurses can be matched to the changing levels of activity and performance.

Timed-Task

By this method the number of nursing hours required is determined by systematically constructing comprehensive patient care plans and adding up the number of minutes each intervention in the care plan will take (Hurst, 2002). This can be done manually but ideally it should be computerised. It is a good predictor of staffing requirements, as it takes account of all the patient variables impinging on nursing time.

Regression-Based System

This method predicts the required number of nurses for a given level of activity. An example of this includes complex dressings, escorts and theatre sessions.

International Experience

Our colleagues in other countries experience issues in relation to recruitment and retention; hence the problems are not unique to Ireland. Many of these countries have developed nurse workforce planning systems and in some cases have introduced legislation. The introduction of legislation is an attempt to define and safeguard safe staff ratios.

Australia

Australia introduced nurse-patient ratios in December 2000 after industrial action by nurses. The ratios were based on best practice, and the legislation was supported by the Victoria Branch of Australia (DOHC Publication Sept. 2005). Another industrial action occurred in 2004 and was settled by including greater flexibility under existing staffing ratios.

Scotland

The Scottish Executive Health Department published Nursing and Midwifery: Workload and Workforce, Planning Project 2004. (DOHC Publication Sept. 2005) The project showed that professional judgement was the method of workforce planning in Scotland. It also alluded to the need of using other tools to validate the findings.

The report made a number of recommendations.

Belgium

In 1987, legislation in Belgium fixed basic staffing levels for hospital wards (DOHC Publication Sept. 2005). The government introduced a tool to calculate nursing workload, the Nursing Minimum Data Collection, which gathers information about what nurses actually do for patients. There is a quarterly data collection, comparisons are possible and may be used to determine the necessity for more resources.

The Situation in Ireland

Currently, no mandatory minimum levels have been set in Ireland. Many organisations do not have formal systems for determining staffing levels. It appears the most commonly used method in Ireland is the system based on historical staffing levels (DOHC Publication Sept. 2005; examine the development of appropriate systems to determine nursing and midwifery staffing levels p21). It would appear however that a number of organisations have taken and are taking steps in this direction with the adoption and utilisation of electronic patient dependency systems. The most prevalent of these systems being Criteria for Care.

Conclusion

It is evident from this literature review, that it is necessary to review systems already developed and how other countries adapted them to suit their healthcare needs. The complex area of workforce planning has and continues to be a contentious area of development.

It is clear that whatever method is selected, it must be adaptable to the local situation and should facilitate rather than dictate decisions on nurse staffing requirements (DOHC Publication Sept. 2005).

Chapter 3

Methodology

Methodology

Four Components of the project

1. *Patient Dependency and occupancy*

Tool

Criteria for Care (Ball et al, 1984) is recognised by many as being the foremost dependency-based workload measurement system (Arthur and James, 1994; Carr-Hill and Jenkins-Clarke, 1995).

Both Beaumont and the AMNCH were currently utilising Criteria for Care as their preferred nursing workload measurement system. For the purposes of this project an additional two measures were included in the Criteria for Care and included; Pressure Area Care and Interaction with Family and Relatives (Appendix 4). This tool was utilised to gather the data on the patient dependency and occupancy. The dependency of the patients was categorised into 4 categories:

Dependency 1	Independent
Dependency 2	Between Independent and Dependent
Dependency 3	Dependent
Dependency 4	Highly Dependent

Process

Daily recording of patient dependency on each of the 6 ward areas was completed by members of the project team. In order to capture the data accurately an excel database was designed by members of the project team, which generated the patient dependency scoring (Appendix 5). This made it possible to determine the number of patients in each individual dependency category for each day of the audit. It was also possible to draw conclusions on the overall patient dependencies for the period of the project, including figures on the bed occupancy for this period also.

2 *Workload measurement/ Nursing Activity Analysis*

Tool

The tool utilised to record nurses activity was that developed by Professor Keith Hurst (Appendix 6). The tool facilitates the recording of daily nursing interventions and activities for each patient, for comparison to a checklist. The checklist/master sheet is divided into 4 main sections, containing sub-sections within each. The four main sections include: Direct Care, Indirect Care, Associated Work and Non-Productive. Nursing minutes are incorporated into the nursing activity analysis for each observed activity. In this case each individual activity is observed every 10minutes consecutively over a six hour period (Appendix 6). Additionally, whereby direct care was observed, it was also necessary to record the dependency of the individual patient receiving the care.

Process

For the purposes of the Nursing activity analysis audit, a total of six shifts, of six hours duration each, for each of the six clinical areas was observed by two members of the project team. This generated thirty six hours of data for each of the clinical areas observed over a period of four weeks. Two observers were utilised to collect the data on each shift. In order to eliminate the possibility of bias on behalf of the observers, the AMNCH observers carried out the activity analysis in Beaumont and vice versa. The observation periods varied to encompass all aspects of the nursing shift, to include morning, evening, twilight, night-time and early morning. Indeed also weekend shifts were observed in order to elicit a complete picture of nursing activity/workload across the full spectrum of the week. During each shift, every staff member on duty was observed. This included, CNM's, Registered Nurses, Rostered and Supernumerary Student Nurses, Health Care Assistants, Agency Registered Nurses, Agency Health Care Assistants, and Supervised Practice Nurses. The rationale for the scale and timeframe of observation was based upon recommendations from the tools designer, Professor Keith Hurst.

One particular element of the tool that required alteration pertained to the identification of the Registered Nurses' grade. Within the U.K. a system of Registered Nurse grading exists. However currently within Ireland no such grading system or method of determining grade exists.

In order to collect the initial data accurately and efficiently an excel database was designed by the observers (Appendix 6). This original database was then translated by the observers, in excel to produce a summary of the observations, thus facilitating the generation of total numbers of hours per observed activity for each dependency level and each staff member group (Appendix 7).

From this database it was then possible to derive the amount of time spent by each staff member group carrying out a specific activity for an identified patient dependency level, which was the aim of the activity analysis (Appendix 7).

3 *Quality Audit*

Tool

The tool utilised was again developed by Professor Keith Hurst. It consists of quality of care measurement component and was developed in conjunction with "Monitor" (Goldstone et al, 1983). It aims to examine standards of care over specified periods of time. The quality scores are derived from a Nursing Quality Survey (NQS) and include questions categorised in five ways.

1. The completeness and timeliness of patient assessment (14 standards were tested for each patient).
2. The nature and value of care plans drawn from the assessment (12 standards).
3. The nature, timeliness and completeness of interventions suggested in the care plans (58 standards).
4. How nursing care is evaluated, notably outcomes (14 standards).
5. Ward fabric and resources (37 standards).

The questionnaire is in two parts: (1) patient assessment, (2) ward and management assessment. Part (1) is further divided into four sections which examine the processes,

quality and patient satisfaction involved in the assessment, planning, implementation and evaluation of nursing care. Part (2) examines the overall management of the ward including patient workload management, its assessment, staff allocation, communication, the type of work conducted by nurses (e.g. nursing versus non-nursing duties), and adherence to policy and guidelines.

The information collated produced totals (see appendix 8) for each area including overall totals based on dependencies, sections total and totals including the ward and management assessment for each clinical area.

Process

For the purpose of the quality audit a total of one third of patients for each dependency were audited in each of the clinical audit areas using the current dependency scorings for that area. A further ward and management survey was conducted for each of the areas. The audit was carried out over a period of one day in each area. They were completed on the same days as both a nursing activity assessment was in progress and that the NDS was recorded.

Questions were scored according to applicable questions i.e. totals of Yes in relation to the total of Yes and No answers combined. Non applicable answers were removed from the calculations.

In order to ensure the successful completion of the quality audit a number of steps were taken:

- A plan was developed in order to assess and learn the tool along with plans for data collection, collation, entry and analysis.
- Members of the project team of both sites met and communicated frequently in order to agree the understanding of the tools, questions involved and data entry methodology (excel via laptop). This was extremely important to the project as a number of issues arose requiring clarification.
- Pilots were conducted by members of the project team to assess the tool, the auditors understanding of the tool and methodology.

- Contact was maintained between auditors of both sites to facilitate clarifications if any issues arose.

In order to ensure patient advocacy a number of further steps were taken;

- After the total numbers of patients in each dependency were calculated, patients were then randomly selected.
- Patient selections were then discussed with the CNM and removed if it was deemed contrary to their care. This rarely occurred, and on such occasions replacements were randomly selected.
- Patients were approached and the purpose of the project was explained in order to elicit their participation. Participation was voluntary and a number of patients declined but again were replaced by new participants randomly selected.

A database (excel) was developed by members of the project team in order to collate the data and ensure that the data was calculated accurately and efficiently (see appendix 9). This included the summary sheet which calculated the totals automatically (see appendix 8) as well as the original data for each dependency group. Data collection was entered directly into the excel database. Data was collected manually in Beaumont and then entered into the same database. The AMNCH Informatics Nurse filtered the data in order to allow for dependency only data to be calculated along with the totals also required.

4 Time-out/ Staffing establishments

For the purposes of this project, over the six months preceding the project and the month of the project, the exact numbers and grades of staff on duty every day for that period was recorded. The figures collected included the total staffing numbers per shift and also the total number of WTE's per ward as the ward staffing establishment. In addition to collecting the figures on the total number of WTE's per ward, the amount of time out was also recorded. Time out was measured as any leave such as, annual leave, sick leave, maternity leave, study leave, paternity leave, parental leave, force majeure leave, un-paid leave and compassionate leave. With regard to this time out, it was measured as WTE numbers.

Collation of data

All of the data was compiled by the project team members and then given to Professor Keith Hurst for analysis in addition to the excel databases. These databases are suitable for ongoing workforce planning projects.

Addressing issues of best practice

As this project involved the collection of data pertaining to patients and staff as part of an internal audit, a number of measures were implemented in order to ensure best practice throughout. Prior to commencement and during the four dimensional audit the following issues were addressed:

- The purpose of the project was clearly identified as an audit, which would clearly identify the most appropriate process to the utilisation of nursing resources in order to meet patient care needs.
- All information and data collected was treated in a confidential and anonymous manner. No identifiable information was presented in the collection or presentation of the findings. As all members of the project team adhered to the Code of Professional Conduct as defined by An Bord Altranais, and by confidentiality clause in terms of employment.
- In accordance with the Data Protection Act, and the Freedom of Information Act, all data generated as a result of the audit is protected. With respect to the electronic data, only four project team members have access to this data, which may only be accessed via usernames and passwords known only to those members. Hard copies of data were securely stored.
- In relation to the quality survey, voluntary verbal consent was sought following the distribution of an information sheet regarding the nature, purpose and level of participation in the audit. During the course of the audit the patient at any stage could bring the audit to an end. The auditors approached the CNM in order to identify those patients who were unsuitable for participation due to current health status. Therefore sensitivity and advocacy on behalf of these patients was protected at all times.

Validity and reliability

The validity and reliability of the tools in this project have been demonstrated throughout the NHS. Numerous studies have been conducted in the NHS utilising these tools, with the establishment of a national dataset on workforce measurement. Furthermore, all project team members were adequately informed and had professional expertise of conducting audits in similar fields. In order to reduce the possibility of bias the auditors/observers completing the activity analysis were not staff members of the Hospital site. In addition, to ensure reliability, the activity analysis auditors/observers remained unchanged throughout the audit. Pilot studies were also conducted in order to familiarise the auditors with the tools, so as to ensure accurate recording of data. One of the strengths of the use of the acuity-quality method are implicit results that indicate data collection accuracy and consistency. At the data analysis stage of the project the accuracy and consistency of the results was verified by Professor Keith Hurst, indicating that the data was indeed not only valid but reliable. Additionally, all data was compared to 94 UK Best Practice wards. These wards are comparable on the basis of service, size and patient acuity.

Pilot Study

A pilot study is necessary to ensure that the study design is feasible and to test the ability of the auditors and observers to obtain accurate data (Cormack 1996). All three tools utilised in the project were piloted in order to:

- Familiarise the auditors/observers with the tools
- Test the use of the tools within the Irish Health Service, as they were not previously used in Ireland.
- Identify any changes necessary to the tools before commencement of the data collection phase of the project

As a result of the pilots conducted, a number of necessary changes to the process of the data collection phase were made, which facilitated the smooth data collection phase for the project.

Chapter 4

Data Analysis and Findings

Data analysis and findings

In order to preserve the integrity of the anonymity of the hospitals, no hospitals will be identified individually.

In analysing the data, Professor Keith Hurst benchmarked (bearing in mind the 'cultural' differences) the inpatient and nursing data collected from both Dublin Hospitals with information collected in the same way from 94 medical and 94 surgical United Kingdom 'best practice' wards. These United Kingdom 'best practice' wards are similar to that of the Dublin Hospitals in that they are large acute academic teaching hospitals with similar bed capacity and service demands. In addition cognisance of the inherent differences between both health services, one of which is a 37.5hour working week in the United Kingdom and the 39hour working week in Ireland were also considered.

The analysed data falls into seven categories:

- Assessor reliability.
- Occupancy and dependency.
- Ward and bed workload.
- Nursing activity: (i) direct care; (ii) indirect care; (iii) non-nursing work; and (iv) personal time.
- Nursing quality: (i) patient assessment; (ii) care planning; (iii) implementing the plan; (iv) evaluating care; and (v) ward environment.
- Time-out: (i) sickness; (ii) annual; (iii) maternity; (iv) study; and (v) compassionate leave.
- Actual and recommended nurses per occupied bed by grade.

Psychometric issues

The main challenges to workload-quality method validity and reliability are assessment and recording inconsistencies either by ward nurses in the case of patient dependency assessment or by non-participant observers (the auditors) recording nursing activity incorrectly. However, one acuity-quality method strength are implicit results that indicate data collection accuracy and consistency – the so-called acuity-quality lie-detector function. Utilising this method makes falsification of the data difficult.

Table 1. Direct Nursing Care Time Ratios per Patient Dependency

	<i>Dep.1(independent)</i>	<i>Dep.2</i>	<i>Dep.3 Dependent</i>	<i>Dep.4(highly dependent)</i>
Hourly mins	*3.2	3.5	8.0	14.7
Ratios	1.0	1.1	2.5	4.6

*3.2minutes = ratio of 1.0

These results demonstrate one month's patient dependency assessment and 312 hours of nursing observations in total for all six wards. This table indicates the following:

- The least dependent (dependency group 1) patients received, on average, 3.2 face-to-face nursing care minutes each hour
- Dependency 2 patients, 3.5 minutes per hour
- Dependency 3 patients, 8 minutes per hour
- Dependency 4 patients, 14.7 minutes per hour i.e., almost five times more face-to-face care than a dependency 1 patient.

This robust methodology clearly demonstrates the accuracy and reliability of the data. The data reflects an incremental rise in the amount of nursing time delivered to the most dependent category of patients (dependency 4) which is expected. Examining the ratio of care delivered, table 1 highlights that dependency 4 patients receive 4.6 times more nursing time than dependency 1 patients. Hence, the reliability of the data.

Patient Occupancy and Dependency

All inpatients were assessed at least daily over one month and placed into one of four dependency categories ranging from low(1) to high(4). Therefore, the percentage rate of patients in each category for each clinical area was attained in the analysis. The bed occupancy figures are based upon averages across the month of data collection.

Table 2. Patient Occupancy and Dependency

	<i>Dep. 1: Independ- ent</i>	<i>Dep. 2:</i>	<i>Dep. 3: Dependent</i>	<i>Dep. 4: Highly Dependent</i>	<i>Avgerage Bed Occupancy</i>	<i>No. Patient Assessments</i>
UK 94 Medical	17%	43%	29%	12%	26	73320
Irl. Ward 1	1%	64%	27%	7%	30	894
Irl. Ward 2	2%	45%	42%	11%	36	1080
Irl. Ward 3	2%	52%	29%	17%	33	990
UK94 Surgery	17%	45%	27%	11%	22	62604
Irl. Ward 1	16%	64%	20%	1%	30	906
Irl. Ward 2	3%	61%	20%	8%	33	1020
UK 11 Speciality	12%	45%	30%	13%	24	20700
Irl. Ward 1	9%	35%	36%	20%	23	690

Compared to the UK, this data demonstrates an increase in the number of dependency 2 and dependency 3 patient scores in Ireland. One possible reason for this may be a deficiency of community care provision/step-down facilities in Ireland.

Nursing Workload

Ward and bed workload indices are standardised values that drive modern demand-side workforce planning. This index is calculated from the:

- amount of direct (face-to-face) nursing care each patient receives; and
- in-patient numbers and dependency mix.

Higher workload values signify heavier nursing work, and a simple way of interpreting workload indices (WLI) is to treat the value as the equivalent number of Dependency 1 in-patients (Ward Workload Index) or occupied bed (Bed Workload Index) . In analysing this data both ward and bed workloads need reporting since small wards generate deceptively low WLI's. Workload also significantly affects nurse retention, sickness and job satisfaction.

Finally, these data are averages and vary day-to-day, widely in some cases.

Table 3. Ward and Bed Workloads

	<i>Ward WLI</i>	<i>Bed WLI</i>
UK 94 Medical	73	2.9
Irl. Ward 1	83	2.8
Irl. Ward 2	99	2.8
Irl. Ward 3	107	3.2
UK 94 Surgery	46	2.1
Irl. Ward 1	50	1.7
Irl. Ward 2	68	2.1
UK11 Speciality	63	2.8
Irl. Ward 1	49	2.1

The hospital's ward values vary and, owing to the wards' multi-speciality nature and large size, therefore should be considered on a case-by-case basis.

Certainly the greater ward WLI's are caused by larger wards.

Generally however, bed workloads are similar to the UK's. Surgical Ward 1's lower index follows its tendency towards lower dependency patients at the time of the study.

Nursing Activity

Data collected by non-participant observation in the wards were categorised in four ways (see Appendix 6 for the rating instrument):

- Direct nursing or face-to-face care, such as talking to patients.
- Indirect care is activity, no less-important work, is one-step removed from the patient such as writing nursing notes.
- Associated work includes non-nursing tasks such as cleaning.
- Personal time is unproductive periods such as meal breaks and personal study.

This data was analysed under the four categories utilising a software programme designed by Professor Keith Hurst, which generated overall nursing activity times based on the data collected.

In the following tables, sub activities of the main categories (*in italics*) breakdown nurses' working styles precisely into percentage time spent.

Table 4a. Nursing Activity

Activity	UK 94 Med	Irl Ward 1	Irl Ward 2	Irl Ward 3	UK 94 Surg	Irl Ward 1	Irl Ward 2	UK 11 Special	Irl Ward 1
Number of observations	126850	3924	1422	1850	117893	1422	2056	15807	1515
Dir. Care %	43	44	*32	40	43	43	45	41	42
Outpatient	<1	<1	0	0	<1	0	0	<1	<1
Extended role	1	<1	0	0	1	0	0	0	0
Communicate	5	11	4	4	5	3	10	6	7
Nutrition	2	1	2	2	1	1	1	1	2
Hygiene	8	7	7	10	7	5	8	8	12
Elimination	4	2	1	2	4	1	2	2	1
Medication	7	8	6	9	7	12	7	6	5
Mobilise	4	4	3	4	3	1	3	5	5
Vital signs	5	4	4	4	4	8	6	5	5
Specimens	<1	<1	<1	1	1	<1	1	<1	1
Procedures	3	4	5	2	4	5	5	3	3
Admit/Disch	2	1	1	1	4	3	2	2	1
Teaching	<1	<1	<1	1	<1	2	<1	<1	0
Assist Dr	2	<1	<1	<1	2	2	1	1	1
Assist Others	<1	<1	0	0	<1	0	0	<1	<1
Indir. Care %	23	23	30	33	25	30	30	25	30
Charting	7	8	12	10	8	9	10	6	6
Reporting	7	7	7	15	8	12	10	9	11
Comm. pat.	6	8	9	5	7	7	6	7	7
Com. Relativ.	2	1	1	1	1	1	1	1	2
Teaching	<1	0	1	2	1	2	2	1	3
Associated %	19	12	16	13	18	8	12	19	15
Cleaning	6	6	5	5	6	2	3	7	6
Meals	4	1	1	1	3	1	1	3	1
Clerical	3	2	4	2	4	2	1	4	1
Communicate	2	0	<1	1	2	2	1	2	<1
Errands	1	3	3	1	1	<1	1	1	1
Supplies	2	1	1	1	1	1	1	2	3
Meetings	2	0	1	2	1	1	3	2	3
Supervising	<1	0	1	1	<1	0	0	<1	1
Personal %	15	20	23	14	14	19	13	15	13
Personal	1	<1	<1	1	1	1	<1	2	1
Unoccupied	3	1	2	2	3	4	1	3	1
Breaks	10	16	16	11	9	11	12	10	12
Study/other	1	3	5	<1	1	4	0	<1	0

*Medical Ward 2's unusual activity pattern is almost certainly a feature of its single-room ward design. As a result the Direct patient care percentage is adversely affected. The above average break time (compared to the UK) is a feature of Ireland's longer working week and 'long days' shift system. That is, nurses based in the UK (who work a 37.5 hour week) go off duty at the end of the early shift whereas Irish nurses take meal breaks during their longer shifts.

Table 4b Nursing Activity by Grade

Key: CNM = Clinical Nurse Manager; SN = staff nurse; HCA = nursing assistant

<i>Activity</i>	<i>UK</i>	<i>Hosp 1</i>	<i>Hosp 2</i>	<i>UK</i>	<i>Hosp 1</i>	<i>Hosp 2</i>	<i>UK</i>	<i>Hosp 1</i>	<i>Hosp 2</i>
Grade	CNM	CNM	CNM	SN	SN	SN	HCA	HCA	HCA
Number of observations	22144	320	270	130651	3115	2347	64226	865	828
<i>Dir. Care %</i>	32	18	15	46	43	44	40	52	40
Outpatient	<1	<1	0	<1	0	0	0	0	<1
Extended role	1	0	0	1	0	<1	<1	0	0
Communicate	5	4	2	5	4	4	6	18	19
Nutrition	1	1	<1	1	1	1	2	2	1
Hygiene	2	<1	<1	6	8	6	11	15	11
Elimination	2	0	0	3	2	1	5	4	2
Medication	9	7	4	11	11	15	1	1	<1
Mobilise	2	2	1	3	4	2	6	6	6
Vital signs	2	<1	1	6	6	5	5	0	<1
Specimens	<1	0	0	<1	1	<1	<1	<1	0
Procedures	3	1	2	5	4	7	2	<1	1
Admit/Disch	2	<1	1	3	1	2	2	5	1
Teaching	<1	0	1	<1	1	1	0	0	0
Assist Dr	5	2	2	2	1	1	<1	<1	0
Assist Others	<1	0	0	<1	<1	<1	<1	0	0
<i>Indir. Care %</i>	34	43	45	29	36	32	12	8	6
Charting	7	2	1	10	12	11	2	<1	<1
Reporting	11	23	14	9	13	11	5	5	2
Comm. pat.	13	14	26	7	7	9	4	2	3
Com. Relativ.	3	2	2	2	2	<1	1	<1	<1
Teaching	1	1	2	1	1	1	<1	0	0
<i>Associated %</i>	24	27	25	12	9	6	32	24	31
Cleaning	2	2	<1	3	2	1	13	14	17
Meals	1	<1	0	1	<1	<1	8	1	2
Clerical	7	7	13	2	2	2	4	<1	2
Communicate	6	2	2	1	1	1	2	<1	0
Errands	1	1	3	1	<1	<1	2	2	9
Supplies	2	0	1	1	1	1	2	6	1
Meetings	1	10	6	1	2	<1	<1	1	0
Supervising	5	6	0	0	<1	1	<1	0	<1
<i>Personal %</i>	10	12	15	14	12	18	16	16	22
Personal	1	<1	0	1	<1	<1	1	1	<1
Unoccupied	1	1	<1	2	1	2	4	2	3
Breaks	8	11	15	10	11	13	10	14	16
Study/other	<1	0	<1	1	<1	2	1	<1	2

There is less of a pattern in the differences between Ireland and UK nursing activity by grade. Some of the Registered Nurses' time includes nurses that deputise for the ward manager, which may explain their higher indirect care time percentages.

Break times are greater across the board. As noted earlier, the longer working week by Nurses based in Ireland may be the reason.

Nursing Quality

As already stated the quality scores are derived from a Nursing Quality Survey (NQS) and include questions categorised in five ways:

- The completeness and timeliness of patient assessment (14 standards were tested for each patient).
- The nature and value of care plans drawn from the assessment (12 standards).
- The nature, timeliness and completeness of interventions suggested in the care plans (58 standards).
- How nursing care is evaluated, notably outcomes (14 standards).
- Ward fabric and resources (37 standards).

The Standards in categories 1 to 4 above were applied to the care of one third of patients in each dependency category to ensure a representative patient mix. Even though 70% is the minimum acceptable score, this watermark means that 30 nursing interventions in every 100 are not completely satisfactory from a patient quality perspective.

From a Kano Model of Quality Measurement there are three indicators: must have, could have, delightful. Critical elements of these include, respect, effective communication, co-ordination and family centred care (Berger et al, 1993). When these indicators are met patient satisfaction is high, and when they are not met patient satisfaction levels fall. In applying this method to the NQS's, this demonstrates that sub standard care can be distinguished from delightful indicators. Generally, it's the delightful indicators which tend to suffer when activity levels increase, and this is reflected in the '30%' failed standards. These figures are analysed by comparing the percentage scores within each of the five categories which give an overall indication as to the quality of the care being delivered.

Table 5. Nursing Quality Survey (NQS) Scores

<i>Source</i>	<i>Assess- Ment</i>	<i>Planning</i>	<i>Imple- mentation</i>	<i>Evalu- ation</i>	<i>Envir- onment</i>	<i>Over- all</i>	<i>No. of Patients</i>
UK 94 Medical	71%	56%	85%	68%	80%	76%	799
Irl. Ward 1	62%	37%	79%	37%	81%	65%	10
Irl. Ward 2	55%	35%	83%	37%	67%	66%	10
Irl. Ward 3	56%	37%	87%	51%	69%	70%	10
UK 94 Surgery	74%	62%	87%	72%	84%	80%	696
Irl. Ward 1	66%	19%	72%	42%	89%	61%	10
Irl. Ward 2	41%	8%	83%	22%	69%	55%	10
UK11 Speciality	67%	59%	87%	70%	75%	79%	83
Irl. Ward 1	71%	66%	94%	52%	81%	77%	7

Encouragingly both hospitals' nurses deliver care to their patients (higher implementation scores) but are failing to document assessment, planning and evaluation of their care in most wards.

Generally, this 'quality pattern' is typical of wards during high levels of activity, whereby delivery of care is not affected. However in this instance the process of documentation is adversely affected. However, if this excellent care is unrecorded, then the evidence to support it is not measurable.

Time Out/Staffing Establishments

The importance of time-out data is clear when nationally, at any time, one nurse in five is away from the ward because of authorised and unauthorised sickness/absence, maternity, compassionate, annual or study leave. This data was analysed by comparing the staffing establishment figures with the actual time-out figures, in order to generate the percentage time-out and hence replacement figures for each of the clinical areas examined in the project.

Table 6. Time-out

Source	Time Out %
UK 94 Medical	22.1
Irl. Ward 1	51.1*
Irl. Ward 2	25.7
Irl. Ward 3	22
UK 94 Surgery	21.7
Irl. Ward 1	30.1
Irl. Ward 2	30
UK11 Speciality	21.4
Irl. Ward 3	19

*Medical Ward 1's and Surgical Wards 1 and 2's greater percentage was caused by high levels of maternity leave at the time of the study, and accounted for approximately 26% of total time out percentages. It should be noted within the period of this study the statutory entitlement for maternity leave was 18 weeks which has since increased to 22 weeks and is due to further increase in 2007 to 26 weeks. Cognisance of changing legislation affecting the percentage of time out needs to be taken when determining recommendations on staffing requirements. Planning for increases in time out percentages need to be factored as they may alter significantly over time.

Discussion on the findings

The findings of this project present significant opportunities for development in addition to inherent challenges.

The interpretation of these findings needs to be cognisant of factors such as the variances between the U.K. National Health Service (NHS) and the Irish Health Service. Currently within Ireland a grading differentiation amongst Registered Nurses does not exist. This feature is notably different within the NHS whereby there are specific grades of Registered Nurses indicating their individual competence to undertake a variety of skills, roles and responsibilities. Indeed also within the NHS the role of the Health Care Assistant is graded, with subsequent training and development programmes relevant to the competence of each individual grade. Reassuringly the role of the Health Care Assistant in Ireland is focused on direct patient care. Development of this role is necessary in the context of the Health Reform programme. Recommendations in terms of skill mix for these two groups within Irish wards demands prudent contemplation, as one is not comparing 'like with like'.

The mixed speciality nature of some of our wards equally demands careful attention when drawing comparisons with the U.K data and making recommendations. In general, not only are Irish wards significantly larger than our U.K. counterparts, but contain greater numbers of dependent patients. As already stated in the report community care is an area for development. Certainly as stated earlier within this report, this data represents one month's data, therefore the activity levels may vary should this study be repeated at a different time. Demonstrating this feature are the findings in respect of one of the surgical wards whereby the activity levels within this normally highly active ward were considerably lower than expected. As a consequence it may be necessary to re-audit this ward in order to accurately reflect the true activity level and staffing demands, prior to the determination of decisions on staffing recommendations based upon the initial data gathered. This clearly demonstrates the necessity for re-audit as activity and acuity levels are not static.

Most interesting was the impact of single room facilities on direct patient care. This characteristic is particularly important as developments within the Irish Health Care Service are revealing increased demand for single room facilities. Subsequently, the impact of single rooms on the extent of direct patient care necessitates careful examination, particularly upon deliberation of staffing requirements in these types of wards.

Clearly the findings also suggest that some practice changes are necessary. For example, the above-average charting and reporting time indicate that we need to examine these processes in order to identify more efficient and effective ways to complete these activities. Improving the process in these activities, most certainly the charting process, may lead also to an improvement in the quality outcomes within assessment, planning and evaluation. Subsequently, there will be documentary evidence of not only the care given, which was evident within this project (implementation), but indeed also the assessment, planning and evaluation of the care patients receive.

Finally, the role of Irish ward managers, which was represented primarily as engaged in indirect patient care or associated work within this project, presents an additional area for further examination as a direct result of this project. Exploring the function of this role may lead to the evolution of this role as increasingly more patient focused.

Overall the findings of this project are positive with regard to both direct and indirect patient care being delivered primarily by Registered Nurses. As with any examination, areas for development and improvement, along with recommendations will be identified. The nature and extent to which recommendations, improvements and developments will be made, will depend upon a number of issues such as: applicability and relevance, cost implications, best fit for our service needs and skill-mix, to mention but a few.

Finally it is interesting to note that there was little variation between the two Dublin Hospitals' results, with the most significant difference being between these two Dublin Hospitals and the UK Hospitals.

Chapter 5

Recommendations

Recommendations

Recommendations from Professor Keith Hurst on Nurse Staffing and Grade Mix.

In analysing the data, Professor Keith Hurst recommended the adoption of the following staffing changes.

Table 7. Ward Staffing per Occupied Bed and Grade-mix

Key: CNM = Clinical Nurse Manager; SN = staff nurse; HCA = nursing assistant

<i>Equivalent Care Groups and Wards</i>	<i>Total WTEs per bed & total staff figures</i>	<i>CNM %</i>	<i>SN %</i>	<i>HCA %</i>	<i>Avg Occ</i>
UK94 Medical actual	1.14	11	59	30	26
Irl. Ward 1 actual Staff %	0.97	7	75	18	30
Actual Staffing figures	29	2	22	5	
Recommended Staff%	1.2	14	56	30	30
Recommended Staff Figures	36	5	20	11	
Irl. Ward 2 actual Staff %	0.98	6	74	20	36
Actual Staffing figures	35	2	26	7	36
Recommended Staff %	1.4	13	57	30	36
Recommended Staff Figures	50	6.5	28.5	15	
Irl. Ward 3 actual Staff %	0.76	13	71	16	33
Actual Staffing figures	25	3	18	4	
Recommended Staff %	1.3	13	57	30	33
Recommended Staff Figures	43	5.5	24.5	13	
UK 94 Surgery actual	1.25	11	56	33	22
Irl. Ward 1 actual Staff %	0.97	6	76	18	30
Actual Staffing figures	29	2	22	5	
Recommended Staff %	1.1	14	57	29	30
Recommended Staff Figures	33	5	19	9	
Irl. Ward 2 actual Staff %	0.75	12	80	8	34
Actual Staffing figures	25.4	3	20.4	2	
Recommended Staff %	1.4	13	58	29	34
Recommended Staff Figures	47.5	6	27.5	14	
UK 11 Speciality actual staffing	1.4	10	53	37	23
Irl. Ward 1 actual Staff %	1.07	8	83	9	23
Actual Staff figures	24.5	2	20.5	2	
Recommended Staff %	1.5	14	56	30	23
Recommended Staff Figures	34.5	5	19	10.5	

***Please note that each of the figures have been rounded to the nearest decimal point**

As the acuity and dependency of the patient changes, so too will the staffing requirements in order to reflect the necessary staffing provision to provide optimal care.

Recommendations of the Health Service providers

Recommendations for changes in practice

It is reassuring to note that these recommendations may be easily implemented locally, and fit in with the context of the Health Service Reform Programme providing patient centred care, with specific accountability and value for money.

Desired outcome One

Reduce the amount of nursing time spent on patient handover.

Suggested Improvement

Recommend an review of patient handover options. As part of this review, to pilot a range of options in order to identify the most appropriate process improvement that will facilitate the greatest reduction in nursing time spent on patient handover. Such examples may include: taped patient handover and patient handover at the bedside.

Desired outcome Two

Improve the efficiency and effectiveness of nursing documentation.

Suggested Improvement

Explore and identify nursing documentation that facilitates increased effectiveness and efficiency in recording delivery of patient care. This includes an examination of the process and content of nursing documentation. Suggested improvements might include: more effective use of the current documentation process including an examination of alternative documentation processes in order to effectively meet diverse service needs.

Desired outcome Three

Measure Nurse dependency levels.

Suggested Improvement

Continue to record patient dependency utilising the existing dependency scoring system, Criteria for Care incorporating the two additional measures used for this report which are: Pressure Area Care and Interaction with Family and Relatives. Use this information in order to assist in decisions regarding manpower planning, service planning, educational needs analysis, departmental strategies and accreditation.

Desired outcome Four

Implementation of a locally based development programme for Registered Nurses deputising as Clinical Nurse Manager.

Suggested Improvement

Conduct a training needs analysis, which will identify the specific skills required in order to deputise as Clinical Nurse Manager. The provision of this development programme, utilising existing resources, will provide an opportunity for registered nurses to develop both professionally and personally, in addition to the development of the service to patients.

Desired outcome Five

To conduct a repeat audit for comparative purposes.

Suggested Improvement

Repeat the audit in nine months in order to evaluate the effectiveness of the improvements in practice. In addition to the following:

Nurse Dependency System

The recommendation for repeat of the dependency scoring includes the increase of scoring from daily to twice daily in order to reflect dependency alterations more accurately within the 24hour period.

Activity Analysis

A recommendation for a repeat of the activity analysis would involve the reduction of the observation time to 5 minute intervals. The rationale to support this recommendation is based on the increased maximisation of data generation. An additional recommendation applies to the tool, which will incorporate the recording of nursing decision making as an observation. The auditors of nursing activity noted nurses actively in thought, as part of their decision making processes, however there was recorded as 'unoccupied' due the absence of such an observable activity within the tool.

Quality

The recommendations for repeat Quality Audits would be to conduct a workshop on the tool in the early stages of quality audit planning to ensure consensus understanding of the tool and allow for clarifications in relation to the tool. This will maximise the understanding of the tool. All auditors must attend the workshop.

Time-out/Staffing establishments

The recommendation for repeat Time-out/Staffing establishments would be to obtain a year retrospective data. This would be to capture all variability in levels etc. throughout the year.

Recommendations on Staffing Changes

Flexibility within the recommendations on staffing is required in order to incorporate the relevant changes in patient acuity and dependency. Therefore in adopting these recommendations the following is suggested:

The recommended increase in Clinical Nurse Manager numbers to be replaced with Registered Nurses (Table 7). As outlined in the report Registered Nurses were equally engaged in non-direct patient care reflecting their role as deputising for Clinical Nurse Managers. It must be noted that these recommendations are based on distinct structural differences between Irish and U.K Health Services.

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Appendices

Appendix 1 Ward Descriptions

Name	DESCRIPTION			
AMNCH Surgical	31 Beds General, Vascular, GI Nurse's station is located at the end of the entrance corridor. Rooms 1 and 2, which are two six bedded, rooms are directly behind it.	7 Single Rooms Left hand side of corridor	4 six bedded rooms Behind Nurses station	
AMNCH Medical	38 beds Medical, Surgical, Haematology, Oncology (H design) The nurse's station is centrally located on the ward, facing the two 4-bedded rooms. One single room immediately to the left of the nurse's station. Treatment rooms etc. are between nurse's station and the remaining single rooms.	29 Single Rooms: 9 Single rooms on the right hand side of ward 10 single rooms on the left hand side of ward (treatment rooms etc. between nurses station and theses rooms)	2 Four bedded Rooms Four Bedded rooms facing Nurses Station	One Single Room to the left of Nurses station (with anti room for isolation or barrier nursing)

Name	DESCRIPTION			
AMNCH Medical 30 Beds Renal, general medical Nurse's station is located at the end of the entrance corridor. Rooms 1 and 2, which are two six bedded, rooms are directly behind it.	6 Single Rooms Left hand side of corridor	4 six bedded rooms Behind Nurses station		
Beaumont Surgical 35 beds General, thoracic, vascular. Nurses stations are at the top of the ward between the 4 bedded high dependency and 6 bedded high dependency rooms.	5 single rooms Left side of ward	4 six bedded rooms Right side of ward (1 of these at the top of the ward is a high dependency room)		1 two bedded room on the right side at the bottom of the ward 1 four bedded room at the top of the ward on the right (high dependency)
Beaumont Medical 34 beds General Medicine, infectious diseases 2 nurses stations 1 at top of ward and 1 near high dependency beds	2 single rooms Right side of ward	1 five bedded room 3 seven bedded rooms Left side of ward		1 six bedded rooms at the rear of the ward on left High dependency
Beaumont Speciality Ward 24 beds Low, high dependency	4 Single Rooms Left side of ward	3 six bedded rooms 2 low dependency room 1 high dependency room Right side of ward		1 two bedded room Right hand side

Appendix 2 Gant Chart

				Resources		Dates			
				AMNCH	Beaumont	February	March	April	May/June
1	Plan	1.1	Develop drafts						
		1.2	Agree plans						
		1.3	Obtain resources						
		1.4	Obtain Equipment						
		1.5	Instructions/ Do's & Don'ts						
2	Audit tool	2.1	Audit tool development						
		2.2	Data entry tool review						
		2.3	Feasibility & comparisons						
		2.4	Decision on methodology						
3	Excel development	3.1	Spreadsheet development						
		3.2	Agreed final						
		3.3	Instructions developments						
4	Audit tool	4.1	Produce tools for data collection						
		4.2	Laminate and disseminate						
		4.3	Instructions						

				Resources	Dates				
				AMNCH	Beaumont	February	March	April	May/June
5	Training	5.1	Audit tool						
		5.2	Spreadsheets						
6	Pilot	6.1	Plan Pilot						
		6.2	Conduct Pilot						
		6.3	Review Pilot						
		6.4	Agreed changes						
7	Data Collection	7.1	Surgical					3 rd April	
		7.2	Medical						3 rd May
		7.3	Mixed						3 rd May
		7.4	Speciality					27 th April	
8	Data analysis	8.1	Check Collate data						
		8.2	Disseminate data						
9	Report	9.1	Develop quality section of main report						
		9.2	Brief overview						
		9.3	Methodology overview - e.g. how why						
		9.4	Training						
		9.5	Pilot						
		9.6	Data collection						
		9.7	Data collation						
		9.8	Data analysis						
		9.9	Results overview						

Appendix 3 Meeting Matrix

Title			
Meeting called by:	Type of meeting:		
Facilitator:	Note taker:		
Time manager:			
Desired Outcome			
By the end of this meeting we will have:			
•			
Invitees:			
Agenda			
WHAT	WHOM	HOW	TIME
Welcome			
Agree on scribe, time-manager			
Review:			
Ground rules			
plus/delta			
Review agenda			
Outline			
Agree			
Agree			
Agree			
Plus/delta			
Additional related information			

Appendix 4 Nurse Dependency System Scoring Instructions

ADULT ADL/CCC DEPENDENCY ASSESSMENT

What to do?

- The patient’s assessment is completed on a daily basis and entered onto the Adult Daily Dependency Sheet.
- At least one month of data is required.
- In the last column (CCCC) enter the patient’s critical care classification level.

Category 1 Nursing Attention (Nurs. Att.)		Score	Category 5 Eating and Drinking (Eat & Drink)	Score	
a)	Constant	4	a)	Fed artificially (e.g. nasogastrically, intravenously)	4
b)	Two hourly or more	3	b)	Depends totally on carer to eat and drink	3
c)	Four hourly	2	c)	Needs help to eat and drink	2
d)	Twice daily or less	1	d)	Independent once meal is served – parent /relative present	1
Category 2 Washing and Dressing (Wash & Dress)		Score	Category 6 Pressure Area Care (Pressure)	Score	
a)	Daily bed bath or open bath needing two carers	4	a)	Necrotic areas	4
b)	Daily bath needing one carer	3	b)	High risk and needing two hourly or more care	3
c)	Assistance needed to wash and dress	2	c)	Moderate risk needing four hourly care	2
d)	Independent- parent/relative present	1	d)	Low risk needing twice-daily check or less	1
Category 3 Using the Toilet (Toilet)		Score	Category 7 Parents or Relatives (Parent/rel)	Score	
a)	Incontinent or catheterised	4	a)	Parent/Relative needs constant explanation/support/help	4
b)	Four hourly or more help needed to use the toilet	3	b)	Parent/Relative needs frequent help/support	3
c)	Needs help to use the toilet	2	c)	Parent /Relative needs occasional help or support	2
d)	Independent – parent /relative present	1	d)	Minimum help/support needed	1
Category 4 Moving (Moving)		Score	SYSTEM FOR SCORING DEPENDENCY		
a)	Immobile	4	Score: <8 = 1 (independent)		1
b)	Two carers needed to help the patient walk or move around	3	8-13 = 2 (between dependence and independence)		2
c)	Needs help to walk or move around	2	Score: 14-22 = 3 (dependent);		3
d)	Independent – parent /relative present	1	>22 = 4 (highly dependent)		4

Appendix 5 Nurse Dependency Excel spreadsheet

		01-Apr		Time:	1200			ADL	Time	Time
Bed Number	Nurs. Att.	Wash & Dress	Toilet	Moving	Eat & drink	Pressure	Parent/rel	Score/Rating	In	Out
Room 1								3		
Room 2								2		
Room 3								4		
Room 4								2		
Room 5								4		
Bed 6								3		
Bed 7								2		
Bed 8								2		
Bed 9								3		
Bed 10								3		
Bed 11								2		
Bed 12								2		
Bed 13								3		
Bed 14								3		
Bed 15								3		
Bed 16								2		
Bed 17								3		
Bed 18								2		
Bed 19								2		
Bed 20								1		
Bed 21								3		
Bed 22								2		
Bed 23										
Bed 24								2		

Appendix 6 Activity Analysis Data Collection

Nursing Activity Analysis: Ward: _____ Date: _____ Time: _____ Hour of _____																														
Activity	Grade:					Initials					Grade:					Initials					Grade:					Initials				
	0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50	0	10	20	30	40	50
Direct Care																														
OP. Outpatient																														
MP. Med. Proced.																														
Com. Commun.																														
Nu. Nutrition																														
Hy. Hygiene																														
El. Elimination																														
Me. Medication																														
Mo.Movement																														
VS. Sital Signs																														
Sp. Specimens																														
NP Nur. Proced																														
Es.Esc./Adm/Dis																														
Tea.Teaching																														
AD.Assist.Dr.																														
AO. Ass Non Nur																														
Indirect: Chart																														
Rep.Reporting																														
Icom.Com.Staff																														
CR.Comm.Rel's																														
Tea.Teaching																														
Associat: Clean																														
MD. Meal/Drink																														
Cler.Clerical																														
Acom.Communic																														
Er.Errands																														
Sup.Supplies																														
Meet. Meet/Inser.																														
Supervis/Ment																														
Non Prod: Pers																														
Un.Unoccupied																														
Br.Breaks																														
Oth.Other																														

Appendix 7 Nursing Activity Summary Sheet

Hospital:								
Ward Name:		CLINICAL NURSE MANAGER						
Grade:CNMII								
		Shift 1	Shift 2	Shift 3	Shift 4	Shift 5	Shift 6	Ttl
Direct Care	Dep							
OP. Outpatient	1	0	0	0	0	0	0	0
AA	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
MP.Medical Proced	1	0	0	0	0	0	0	0
AB	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
Com. Communicat	1	0	0	0	0	0	0	0
BA	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
Nu.Nutrition	1	0	0	0	0	0	0	0
BB	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
Hy.Hygiene	1	0	0	0	0	0	0	0
BC	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
El. Elimination	1	0	0	0	0	0	0	0
BD	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
Me. Medication	1	0	0	0	0	0	0	0
BE	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
Mo.Movement	1	0	0	0	0	0	0	0
BF	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
VS. Vital Signs	1	0	0	0	0	0	0	0
BG	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
Sp.Specimens	1	0	0	0	0	0	0	0
BH	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
NP.Nursing Proced	1	0	0	0	0	0	0	0
BK	2	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0

Es.Esc/Adm/Disch.	1	0	0	0	0	0	0	0	0
EP	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
Teach.Teaching	1	0	0	0	0	0	0	0	0
CD	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
AD. Assisting Dr.	1	0	0	0	0	0	0	0	0
CE	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
AO.Assisting Other	1	0	0	0	0	0	0	0	0
CF	2	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0
Indirect Care									
Char/PA charting		0	0	0	0	0	0	0	0
Rep/WR Reporting		0	0	0	0	0	0	0	0
Icom/PB Comm.Staff		0	0	0	0	0	0	0	0
CR/PC.Comm.Rels.		0	0	0	0	0	0	0	0
Teach/FA.Teaching		0	0	0	0	0	0	0	0
Associated Work									
Clean/DA Cleaning		0	0	0	0	0	0	0	0
M/DB Meals, Drinks		0	0	0	0	0	0	0	0
Cler/DC Clerical		0	0	0	0	0	0	0	0
Acom/DD Adm.Com		0	0	0	0	0	0	0	0
Er/DE Errands		0	0	0	0	0	0	0	0
Supl/DF Supplies		0	0	0	0	0	0	0	0
Meet/HA Meetings		0	0	0	0	0	0	0	0
Sup/GA Super/Mentor		0	0	0	0	0	0	0	0
Non Productive									
P/NA Personal		0	0	0	0	0	0	0	0
U/NB Unoccupied		0	0	0	0	0	0	0	0
B/NC Breaks		0	0	0	0	0	0	0	0
Other		0	0	0	0	0	0	0	0

Appendix 8 Quality Data Summary Sheet (Totals Example)

Ward XXXX	Dependency 1	Dependency 2	Dependency 3	Dependency 4	Totals	Total	Total %
Assessment	74.07%	74.07%	70.97%	66.67%	Assessment Total =	0.70667	70.67%
Planning	81.82%	56.00%	61.54%	83.33%	Planning Total =	0.66216	66.22%
Implementation	97.30%	92.00%	94.49%	91.30%	Implementation Total =	0.93548	93.55%
Evaluation	62.50%	5714.29%	46.15%	50.00%	Evaluation Total =	0.52381	52.38%
Complete Totals =	3.156895532	59.36359788	2.731482386	2.913043478	Complete Totals =	0.81418	81.42%
Combined Totals (Plus Ward & Management)					Combined Totals (Plus Ward & Management)	0.81115	81.12%
Hospital xxxx	Ward & Management	Ward & Management %					
Speciality xxxx	0.764705882	76.47%					

Appendix 9: Excel Database for Data Entry Example

	A	B	C	D	E	P	Q	R
1		Clinical Area Name			Section 1 = Assessment			
2		Surgical = 1 Mixed = 2 Specialy = 3 Surgical = 4 Medical = 5 Specialiity = 6	Dep 1= 1 Dep2 = 2 Dep 3 = 3 Dep 4 = 4		Applies to all: Yes = Y No = N Not applicable or Information Not Available = NA			
3	ID	Ward Type	Dependency		A1	A12	A13	A14
4	P1							
5	P2							
6	P3							
7								
8	Dep 1 =		0	Y =	0	0	0	0
9	Dep 2 =		0	N =	0	0	0	0
10	Dep 3 =		0	NA	0	0	0	0
11	Dep 4 =		0					
12								
13								
14								
15								
16								
						Calculations		
						Total yes =	0	
						Total No =	0	
						Total applicable	0	
						Total Non applicable	0	
						Result =	#DIV/0!	