PLANNING THE WORKFORCE

FOR

DELIVERING THE FUTURE

Royal College of Surgeons in Ireland, Institute of Leadership and Healthcare Management and National Maternity Hospital

Midwifery Workforce Planning Project

2009
On behalf of the Royal College of Surgeons in Ireland and The National Maternity Hospital Dublin, we are delighted to launch this landmark Midwifery Workforce Planning Report.

In an ever increasing complex healthcare environment that demands the highest quality of care, standards and accountability, one of the most significant investments is in human resource management. This project, in harnessing the human resource elements of the Midwifery Service of the National Maternity Hospital, has unveiled important information on the current and future effectiveness and efficiency of the Midwifery Service.

The timing of this project fits closely with the National Health Service Plan 2009, which outlines in its targets the need for greater effectiveness and efficiency within the Health Services of Ireland.

Indeed from an international perspective this project has pioneered the way forward for collaborative workforce planning within the Midwifery sphere.

Our thanks are due to the Project Team and to those who advised the project team.

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Midwifery Workforce Planning Project
**Midwifery workload index (WLI):**

A figure indicating the midwifery work required to meet mothers’ needs in a given situation. Dividing the WLI by the unit’s number of occupied beds is known as the acuity. Both WLI and acuity are necessary for benchmarking purposes.

**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.

**P/N:**

Postnatal

**Personal time:**

Meal and drinks breaks, personal study and unoccupied time.

**Reliability:**

Determines the strength of a research instrument in terms of consistency; therefore the instrument should give the same measure every time.

**Skill mix:**

The mix of different types of practitioners making up the ward’s establishment. Midwife 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.
**Time-out:** Leave away from the ward or unit of all kinds including: sickness, annual leave, compassionate, uncertified, certified, maternity, study, etc.

**Validity:** Evidence that a research instrument measures what it is designed to measure and is therefore accurate.

**WTE (Whole Time Equivalent):**
One way of expressing the actual numbers of midwives in an establishment. One midwife working 39 hours a week is one WTE. Two midwives working part-time; for example, one midwife working 20 hours (0.53 WTE) the other working 19 (0.47 WTE) hours a week is also one WTE.
Project Team

Project Leadership

Sibéal Carolan: Primary Investigator, Lecturer, Institute of Leadership and Healthcare Management.

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Professor Keith Hurst: International Workforce Planner
Profile of The National Maternity Hospital

The National Maternity Hospital on Dublin's Holles Street was established in 1894. It is now one of Europe's largest maternity hospitals with 192 beds. The hospital provides Maternity, Gynaecology and Neonatal services and celebrated its Centenary in 1994. The original focus of the service were the poor people of the districts surrounding Holles Street. However continuous change and growth from humble beginnings means that today, one in every twelve Irish citizens begins life behind its walls. The hospital is recognised as a national referral centre for complicated pregnancies, premature babies and sick infants. Its Gynaecology unit treats over ten thousand outpatients annually. The National Maternity Hospital has built up a reputation for undergraduate and postgraduate training and holds international courses on the Active Management of Labour each year. The hospital also educates midwives and neonatal nurses and runs an annual higher diploma course in Neonatal Studies in conjunction with the two other Dublin maternity hospitals and the Royal College of Surgeons. The Community Midwifery service was the first such scheme established in Ireland in 1998 and now consists of 17 midwives providing domino, home birth and early transfer home services to women who live in South Dublin and North Wicklow.

Profile of The Royal College of Surgeons in Ireland, Institute of Leadership and Healthcare Management

For over two hundred years RCSI has played a major role in medical education and training in Ireland. Founded in 1784 to train surgeons, a medical school was later established in 1886. Today, RCSI also has Schools of Pharmacy, Physiotherapy and Nursing. In addition to undergraduate education and its central role in surgical training, RCSI delivers postgraduate training and education through its Faculties of Radiology, Dentistry, Sports & Exercise Medicine, School of Postgraduate Studies and Institute of Leadership and Healthcare Management. RCSI's Research Institute is one of Ireland’s foremost research centres.
Noble Purpose

‘Building on our heritage in surgery, we will enhance human health through endeavour, innovation and collaboration in education, research and service’.

The RCSI Institute of Leadership and Healthcare Management (ILHM) is based in Dublin, Bahrain and Dubai and provides:

- Education to Postgraduate Diploma and Masters Degree levels in leadership, healthcare management and organisational development
- Short programmes in leadership, management, communication, coaching and professional development
- Consultancy services in Psychometrics and Knowledge and Information Management
- Applied Research expertise applying quantitative and qualitative methodology

Our academic programmes are internationally recognised and are accredited by the National University of Ireland and by the Ministry of Higher Education and Science in the United Arab Emirates. Because of our long history of educating and training doctors, nurses, allied health professionals and general managers, we understand the health services and the challenges confronting health professionals. We espouse the core values of integrity, accountability, respect and commitment to caring and co-operation in professional practice.

RCSI Institute of Leadership and Healthcare Management Research Strategy

Our vision is to facilitate improvements in the performance of healthcare organisations in Ireland and internationally through the conduct of high quality, collaborative healthcare management research.
Our priority research interests are in the areas of patient safety, healthcare management, leadership and quality. These areas have been under-researched in Ireland and the Report of the Commission on Patient Safety and Quality Assurance (2008) recently recommended an active research programme on patient safety and quality for Ireland. Since the Institute’s inception in 2005, we have gained expertise in measuring patient safety culture and we are currently assessing the quality of care in a number of hospitals.

We conduct commissioned and collaborative research studies on behalf of the public and private sector agencies and organisations. Recent projects have been funded by the Irish Hospice Foundation, Dublin Fire Brigade, the Dublin Academic Teaching Hospitals and the RCSI.
Project Background

The justification to undertake this project at this time is founded on the basis that within the sphere of Midwifery Services in Ireland, an examination of workforce planning methods was fitting. To date, limited workforce planning projects of this scale have been undertaken, which furthermore justifies the appropriateness of this particular project. In contrast, our counterparts in the United Kingdom have recognized the value in planning the workforce for quite some time, with substantial work already undertaken. This being said, the approaches applied in this project have not been undertaken before in either Ireland or the United Kingdom. Investment in this type of project has resulted in the feasibility for the postnatal Maternity Unit to develop accurate information on the effectiveness and efficiency of not only the workforce but indeed the quality of the outcomes from the inputs into delivery of the service. Furthermore this information may be utilized to effectively benchmark their services, for the purposes of improvement in the effectiveness, efficiency and quality of the service delivered, whilst utilizing the workforce to its maximum capability.

In choosing the approach taken in this project it was recognized that Birth Rate Plus was one the most effective tools in determining skill-mix in the United Kingdom. Previously, in 2005 the National Maternity Hospital had undertaken a significant skill-mix project utilizing the Birth Rate Plus methodology. Hence embarking on this project has not only built on the information and key learning gleaned from having already undertaken a skill-mix project but has for the first time merged two approaches to workforce planning in Birth Rate Plus and Activity analysis within the post natal setting.

Therefore the expertise and indeed an understanding of the value of workforce planning were present, which ensured the success of the project to completion and implementation of recommendations. The significance of this project lay firmly in the outcome of not only determining the current and projected skill-mix, but indeed determining the activity
of midwifery and non-midwifery care in the post-natal setting in order to ascertain areas for improvement in efficiency, effectiveness and quality of care. An investigation into the complex activities involved in the delivery of midwifery and non-midwifery care has ultimately led to a significantly enhanced level of understanding as to where the necessary process improvements were required and will benefit the service most effectively.

It was clear from discussions with the National Maternity Hospital that the focus of any skill-mix/workforce planning project needed to take account of the workforce skill including their activity level. Additionally the types of activities each member of the workforce was engaged in. The previous work utilizing the Birth Rate Plus methodology had identified the postnatal staffing based on the casemix of mothers in 5 categories. The staffing however does not indicate the mix of skills for types of activities based upon the staff grade. Therefore recommendations on postnatal staffing were based upon total Whole Time Equivalent (WTE) numbers and not on individual staffing skill mix, based upon a skills assessment or analysis of activities. Hence the justification for the merging of two distinct approaches, one that was already renowned for determining staffing based upon categories of births and the additional method Activity/Quality method which could identify not only the skills of the workforce, but the determination of activities and the quality of the outcomes from the staffing mix.

Merging these two approaches was on the basis of the desire and need to answer the following questions: How many staff are required to provide safe and effective high quality care to postnatal mothers: What are the average categories of mothers in the postnatal unit requiring care i.e demand for care: What activities are the staff primarily engaged in on a daily basis: How much time does each category of mother require from the service: Number of staff required to provide quality care: Breakdown of the key skills per grade of staff member to provide care. The aim of this project was to not only build on the previous skill-mix project utilizing the Birth Rate Plus methodology within the delivery room of the National Maternity Hospital, but to widen the scope to post natal care in addition to incorporating an activity analysis study. In doing so, the existing
information generated from the original birth rate plus project was utilized to draw comparison and enhance the project outcomes.

**Project Objectives**

The primary objective of this project was to undertake a midwifery workforce planning project in an effort to ascertain the current and projected skill-mix requirements for the postnatal midwifery service of the National Maternity Hospital. A further and equally important objective was the accurate identification of midwifery and non-midwifery activity, thus facilitating the implementation of multiple process improvements in the delivery of postnatal care to mothers and infants. Ultimately these improvements will enhance the delivery of postnatal midwifery care through a more effective and efficient midwifery service. In achieving these objectives the Midwifery service of the National Maternity Hospital embarked on a land-mark project incorporating two approaches for the very first time not only here in Ireland but across the British Isles: Birth Rate Plus developed by M. Washbrook and J. Ball, and an Activity/Quality method of workforce planning developed by Professor K. Hurst. This approach was unprecedented in the field of workforce planning.

**Project Benefits**

The benefits of undertaking this project were significant and can be categorized into short term and long term.

*Short term benefits*

- In-depth knowledge on a variety of workforce planning methods as a consequence of undertaking a detailed literature review
- Experience of completing a combined project utilizing two work-force planning/skill-mix methodologies
- Valuable information on current and projected skill-mix, staffing and replacement
- In-depth insight into activities and roles of midwifery and non-midwifery staff
- Identification of appropriate areas and subsequent recommendations for improvement in the effectiveness and efficiency of the service
- Determination of the quality of the service currently being delivered within current processes and staffing
- Recognition of this project as a landmark project

**Long term benefits**

- Planning the workforce for a more efficient and effective delivery of service
- Expertise to repeat the project for comparison
- Baseline data upon which to compare and contrast the midwifery service delivery with other service providers both nationally and internationally
- Evidence of development of the service to meet patient and service demands with monitoring and auditing of improvements as a result of implementation of the recommendations of the project
- Approval for changes within the midwifery and non-midwifery service at strategic and corporate level
- Positively affect change for Midwifery services both nationally and internationally

**Critical Requirements**

The critical requirements for this project were categorized as:

- Literature review
- Development and modification of data collection tools
- Education and training of project team
- Pilot project
- Data collection and co-ordination
- Data analysis, discussion and presentation of findings
- Report writing
- Action on recommendations and re-audit
Introduction

The role of the midwife as primary carer for women and infants experiencing normal pregnancy and childbirth has remained essentially unchanged for many years. However the midwife has changed and adapted to meeting the needs of women and the provision of holistic maternity care in various contexts and settings, throughout the ages. Nowadays there are many carers in the maternity health care team and several more people involved with the delivery of care in the hospital setting. The greatest and most valuable resource, in any health care system or setting is the staff or workforce. Buchan et al (2000) maintain that over 70% of the budget is spent on staff. This is also similar in Ireland where around 40% of the health workforce is nurses, which also includes midwives. The aim of the service should be to utilise valuable resources, effectively and efficiently and to provide improved patient care and outcomes.

The report of the Commission on Nursing (1998) made many recommendations in relation to the development and expansion of nursing and midwifery roles, together with staffing levels and better utilisation of appropriate skill mix including care assistants (para 7.63). This is further discussed in a guidance paper (Position paper No.26) by the Royal College of Midwives in 2002 “Refocusing the role of the midwife”, where a positive view is cautioned with care. All new developments need to be monitored and evaluated to sustain changes.

The role of the midwife is established in the Nurses Act (1985) and defined in the European union Midwives Directives 80/155/EEC Article 4. However the challenges of modern maternity services, new technologies, new settings, diverse populations, changing work practices coupled with staff shortage, limited financial resources and increased workloads, demand that the provision of maternity services are open to learn and develop better and improved methods of delivering care.
With this in mind, correct skill mix is vitally important to enable the most appropriate, trained person to provide appropriate care at all times. 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”.

**Staffing levels and workforce planning**

Workforce planning helps to ensure that there are sufficient staff available at the right time, with the right skills, diversity and flexibility to deliver high quality care to meet the needs of individuals and communities (DOH, UK 2000). With greater choice in models of maternity care and greater expectations of women in childbirth, staff and skills need to be reassessed and plans put in place to meet this changing need. A systematic assessment of future human workforce needs, is about defining current supply and requirements, assessing gaps in supply and service provision and further consideration for future supply and requirements (Ripley 2000).

Hurst (2002) has done much work in reviewing nursing teams and the quality and cost of care, being affected by inappropriate staffing levels. He also describes five commonly used workforce planning methods. These methods include: Professional Judgement approach; Nurses per occupied bed; Acuity-Quality; Timed-task/Activity approaches; Regression-based system. These approaches are predominantly applied within the nursing arena and not Midwifery.

Midwifery workforce planning has relied primarily on Birth Rate Plus (Washbrook and Ball 1996) which was designed in the UK to determine staff levels in maternity units during recent years. Birth Rate Plus incorporates an intrapartum score sheet that uses clinical indicators to allocate mothers and babies into five categories. Increases in the number of clinical interventions such as epidural, extended episiotomy or emergency spinal anaesthetic all result in a greater scoring and overall category.
Recommendations on staffing requirements for intrapartum care are based upon the number of births and clinical patterns recorded. Postnatal care requirements are based upon the outcome categories. Therefore, the greater the number of mothers and babies in the higher categories the greater the demand for care in the postnatal care setting. This tool has demonstrated flexibility in its design as it has been successfully adapted as required such as in Australia with good results.

In determining appropriate staffing and skill mix, it is essential to consider the impact of staffing changes on the quality of care delivered. Quality of care and workloads have always been considered in nursing as there is evidence that poor quality is linked to increased workload (Williams 1999). Interestingly this area has not been as closely considered in midwifery. Although current workforce methods in midwifery examine the staffing requirements to deliver the service, there is an absence of the impact of subsequent staffing recommendations on the quality of care being delivered.

**Skill-mix, role development and expansion-Specialist and advanced roles.**

In examining workforce planning, skill-mix forms one of the tenets to securing the most appropriate and efficient mix of skills in the midwifery team. This however demands knowledge of each team members’ skills and the potential for growth and development of skills within the team. Traditionally forecasting of staff type or numbers required was made through the opinion of `experts` senior clinical / management staff (professional judgement) (Nessling 1990). Many factors influenced these decisions such as financial resources available, existing staff, clinical issues (dependency of patients, geography of unit etc.), the experience of individuals who undertook the reviews and the limited historical data that was available to them to support their decisions. Skill mix review according to the literature is generally on a single profession review of work practices. Notter (1993) argues that these are not skill mix reviews, but instead are grade mix reviews. However a skill mix review should identify the skills that are required to provide a total service and involve all staff groups. The need to refocus the increased maternity
role and review the establishments has been a developing question since the turn of the century (Sandall, 2001).

Part of the midwives role is supporting women and their babies after childbirth in the postnatal setting. Postnatal care is provided in busy environments in the majority of Irish hospitals. However there has been limited evaluation of care and continuity has always been a challenge for midwives (Brown et al 2005, NICE 2006). Enhancing and expanding care activities both for midwives and health care assistants (HCA) have been developing in Irish maternity settings during the last few years with the introduction of defined roles and organised training.

Another development was the introduction of Clinical specialist roles and Advanced Midwifery Practitioners (Commission on Nursing, 1998). This enhanced the role and scope of the practitioner and provides timely, expertise to the women, embracing innovation, without impeding holistic care or reducing quality standards. Broadening the scope of the midwife and allowing for flexibility can always be considered once the value of sustaining the midwifery model of care and its benefits for maternal and infant wellbeing are always maintained. Certain roles and tasks can be delegated to others, once trained and competent to do so. The National Maternity Hospital has embraced the role of the Health Care Assistant since 2000 and training has also been provided in conjunction with health board partners in the form of the FETAC level 5 Programme.

**Skill mix and the Maternity support worker/Healthcare assistant**

A limited amount of literature concerning the support worker role within the maternity services was evident in the literature review, in contrast to extensive nursing-related literature, and most reviews were based in the UK setting. Langford (1990) reported the appointment of the first Maternity Support Worker, whose duties were to perform clerical, environmental, and physical tasks delegated by midwives. The role has developed and changed over the years, with the RCM evaluating the role on three
occasions according to Kauffman (1999). Most respondents felt the role was valued and considered the employment of a HCA enabled midwives to spend more time with women. This was evident also in the community setting (Spigby and Crowther, 1999) Further review of the subject by Woodward in 2004 looking at the Role of Maternity support workers, reflects the positive attitudes towards the expanding role of MSW, but also acknowledging the fears and concerns of the midwives.

In Ireland the role of the Health Care Assistant (HCA) is to support the delivery of patient care under the supervision and direction of qualified nursing/midwifery personnel (DOH&C 2001). It also notes that further duties will be dependent on the clinical setting and this will be reflected in local service needs (HSE 2006). A study by Hasson et al (2005) exploring the role of the HCA in maternity services in Ireland found that the HCA’s carried out more indirect care activities than direct care activities. However Wiegers (2006) identifies that the most important tasks for HCAs in maternity settings are being able to detect health problems and to instruct, observe and support the mother and family in establishing a new routine in their family life and help them become confident parents. She suggests that crucial time spent with mothers should be optimally used by the appropriate care giver, educated and trained to fulfil the role.

This concept reiterates work done previously in relation to new roles within the maternity setting by Wistow (1997) “That one must be trained and educated to a level of competency in order to be accountable for their activities”.

Browne (2005) in the UK, also assessed the training needs of 7 maternity hospitals in three Trusts and devised a programme in line with the RCM guidance (2004), to ensure the potential of the HCA to contribute more effectively to the maternity care team could be acknowledge. Maternity support workers are perceived to play a key role in the future maternity workforce and improve the quality of care for women, freeing up midwives’ time, improving working lives, continuity of carer, and support in establishing breastfeeding, and this has been evaluated in May 2006 (Tope 2006), as cited in Sandall et al 2007.
However there has been little data on the degree of change and what midwives were doing instead (Sandall et al, 2007). Ackerman (2008) suggests that they can never replace midwives however their complementary role needs to be embraced, embedded and is here to stay.

Internationally, similar support roles have been developed. In the Netherlands the use of maternity care support workers provides support for women while freeing the midwife to undertake essential midwifery duties (Lindsay, 2004). In the UK Maternity care assistants in postnatal wards embrace such duties as parenting support, bath demonstrations, well baby check, breastfeeding support and heel prick screening (Saunders, 2005)

**Midwifery Practices**

The primary role of the midwife is to lead in midwifery care, promoting and sustaining physiological childbirth (Blake 2008). However midwifery practice has seen many changes, over the years, but promoting and sustaining normality has always been at the forefront of Midwifery (RCM, 2007).

The shortage of midwives, coupled with midwifery role expansion, reduction in junior Doctor’s hours, has according to Lindsay (2004) caused stress and strain within maternity services. Concerns, however have been raised about the impact of support workers in areas that were once the sole remit of the midwife, and Charlton (2001) states that “Erosion of the midwifery role is the chief concern of many midwives”. Midwives today are severely challenged in their workload. The changing priorities of women who are better informed and have greater expectations, determine the way in which midwives work is undertaken and evaluated (Saunders 2005). Robinson (2007) identifies demographic and lifestyle hurdles that challenge midwives in the UK, and it could be suggested this is mirrored here in Ireland.
Work in 1997 by Ruddy et al looking at non-nursing duties in the maternity setting, and Francomb 1997 demonstrated that many traditional midwifery duties do not require the knowledge and skills of a trained midwife. These challenges include such issues as, a rising birth rate, more women having babies in later life, increasing levels of obesity and related medical complications, teenage mothers and an increase in assisted conception which is resulting in more multiple births. These situations may lend to an argument that women are likely to require more specialist healthcare from all members of the healthcare teams in our maternity services, especially within the postnatal wards.

**Postnatal Care**

Postnatal wards provide a combination of essential midwifery care for uncomplicated postnatal women and more complex care for women with a more complicated postnatal journey. The level of midwifery input during their stay is considerable in order to ensure that mothers are prepared for coping at home. According to the Action Plan for Maternity Services (2008) if adequate skilled resources are provided during this postnatal period, problems such as postnatal depression or inability to breastfeed can be reduced or avoided.

**Conclusion**

The optimum method of workforce planning is that which combines the determination of the dependency of those requiring care, the quality of the care currently being delivered by the current staffing establishment and skill-mix in addition to examining the skills of those who are not only competent to deliver care but are the most appropriate. The combination of methods used within this project will help to shed some light on the roles of the midwife and the supporting role of the HCA, whilst also examining the quality of care currently being delivered by the midwifery team.
Introduction

The methods employed in this project have incorporated a number of approaches and designs. Each were completed simultaneously to ensure consistency and accuracy in the collection of all data. The approaches include the completion of a Birthrate Plus assessment, midwifery workload measurement/activity analysis, quality survey, role clarification assessment and compilation of staffing establishment. This combination has resulted in the provision of rich, accurate data upon which to advise midwifery staffing and skill mix. As with any project that involves the collection of data pertaining to those in receipt of care as part of ongoing audit, in the interests of best practice and protection the following measures were instituted and adhered to:

- All information and data collected was managed confidentially and anonymously in accordance with the Data Protection Act (2003) and the Electronic Commerce Act(2000).
- No identifiable information was either collected or presented in the findings.
- The purpose of the project was clearly outlined as an audit to determine the effective and efficient utilization of midwifery resources.
- Each member of the project team is a Registered Nurse/Midwife and therefore practices in accordance with the Code of Professional Conduct as defined by An Bord Altranais.
- Participation in the quality survey was entirely voluntary with the nature and purpose of the project clearly outlined.
- Randomly selected participants in the audit were firstly discussed with the Clinical Midwife Manager to determine the appropriateness of approaching these participants.
- Care was taken by the auditors to sensitively approach mothers so as to ensure not to interfere with the bonding process between mother and baby.
Each approach will now be discussed in greater detail.

**Birthrate Plus**

Birthrate plus is an internationally recognized tool for determining midwifery staffing whole time equivalents (Ball and Washbrook, 1996). The core tenet to the system is the use of an intrapartum score sheet that uses clinical indicators to allocate mothers and babies into five categories. Hence the staffing requirements for intrapartum care are based upon the number of births and clinical patterns recorded. Postnatal care requirements are based upon the outcome categories. Therefore, the greater the number of mothers and babies in the higher categories the greater the demand for care in the postnatal care setting. The categories range from I to V whereby category I refers to a normal delivery with minimal interventions, and category V refers to a complex delivery requiring significant interventions, e.g. caesarean section. Increases in the number of clinical interventions such as epidural, extended episiotomy or emergency spinal anaesthetic all result in a greater scoring and overall category.

For the purposes of the project, all births in the National Maternity Hospital for one month preceding and the month during the period of the study were recorded and assigned a Birthrate Plus category score. Additionally those mothers and babies that were transferred to the postnatal Unit 7 had their Birthrate Plus score recorded upon admission to the Unit for utilization in the Activity Analysis.

**Midwifery Activity Analysis**

The purpose of undertaking a midwifery activity analysis/workload measurement analysis is to determine how each member of the postnatal team spends its time delivering care to mothers and babies. Furthermore this approach reveals which activities demand the greatest amount of care/time whilst also relating this information to the demand for care
based upon the category of mother and baby. Thus testing the assumption that the higher the category the greater the demand for care. Workload measurement/activity analysis has been utilized most notably within the Nursing sphere, however not within the Midwifery setting. Hence it was necessary to modify the current tool to reflect midwifery activity. Expert midwives were invited to a workshop devoted to the modification of the nursing activity analysis tool. This however is not the first modification of the tool developed by Professor Keith Hurst, as previous modification had been successfully completed for use in the intellectual disability setting.

The tool records daily midwifery interventions under four main sections. These sections include direct care, indirect care, associated work and non productive midwifery activities. Individual activity is recorded every 10 minutes for comparison to the checklist under the four main sections. Additionally for each activity recorded under the direct care section, the Birthrate Plus category of the mother/baby is also recorded. This detail provides valuable information on the demand for care or indeed dependency on care associated with the Birthrate Plus category scoring.

Subsequent to the modification of the tool the task of determining the number of observation hours to accurately identify activity was agreed. As this project was embarking on new ground, the deficit of comparable data necessitated a significant increase in the number of observed hours of activity. The usual number of observed hours is thirty six, however for the purposes of this study that figure was doubled to seventy two hours. The seventy two hours were recorded by two auditors in 12 shifts of six hours duration across the full spectrum of the week to include morning, evening, night, weekday and weekend. Every staff member was observed including Clinical Midwife Managers, Registered Midwives, Post Graduate Student Midwives, Undergraduate Student Midwives and Health Care Assistants. The collated data was entered into an excel spreadsheet which was sent to Professor Keith Hurst for further analysis.
Quality Survey

The purpose of undertaking this audit was to establish the quality of care being delivered to mothers and babies in the postnatal unit. In ensuring the accurate measurement of quality the project team chose to embark upon the development of a quality survey tool. An expert group was formed and a quality survey tool was developed to assess midwifery care. Midwifery quality scores were derived from a newly devised Quality Survey (QS) that includes questions categorised as:

1. Mother and baby assessment completeness and timeliness (29 standards).
4. How care is evaluated, notably outcomes (16 standards).

In collecting the data on quality it was acceptable to audit one third of each Birthrate plus category. In contrast however as there was a dearth of comparable data in this instance it was necessary and appropriate to significantly increase this ratio. Consequently a total of 24 audits were carried out incorporating a proportionate number within each Birthrate plus category. The quality survey was completed during the same timeframe of the midwifery activity analysis, thus ensuring consistency and reliability of the data collection, based upon the same sample.

In order to ensure its successful completion the quality survey was undertaken by experienced auditors. Protecting patient advocacy a number of steps were taken:

- Each mother was randomly selected
- Once selected the auditors consulted with the Clinical Midwife Manager/Registered Midwife on the appropriateness of auditing the selected mother. If deemed inappropriate replacements within that category was randomly selected
• Each mother was informed of the nature and purpose of the project in order to elicit their voluntary participation. Similarly mothers that declined participation were replaced by randomly selected mothers within that category.

The data collected was collated and entered into an excel database, facilitating the efficient and accurate calculation of the data to produce percentage totals.

**Role Clarification**

The appropriate and accurate identification of skill-mix was a central focus of this project. Hence the project presented the opportunity for the midwifery service of the National Maternity Hospital to re-examine its job roles, namely the role of the Clinical Midwife Manager, Registered Midwife and Midwifery Care Assistant. In order to achieve this, the project team held a workshop with key stakeholders. Utilizing a questionnaire developed by Professor Keith Hurst and used throughout the UK, fundamental questions on midwifery care activities were asked to determine the most appropriate or indeed possible team member to perform these activities safely, effectively and efficiently. A total of 103 midwifery activities were allocated to (e.g., CMM1) job profiles. Allocations were based on two criteria:

• who is **competent** to do the work
• who **should** do the work.

Role clarification was essential to reveal and establish the extent to which the transfer of skills and activities amongst the midwifery team could create a more efficient and effective midwifery service.

This data was collated and sent for analysis and incorporation into the recommendations on overall staffing establishments.
Staffing Establishment

Essential to the recommendations on staffing establishments is the necessity to examine the current and preceding staffing establishment within the clinical area. It is only by assessing current performance based upon current staffing establishment that recommendations can be accurate and reflective. Indeed the rationale for examining the staffing establishment for the preceding 6 months is critical to determining the time-out level. Time-out is the collective amount of time each member of staff is away from the clinical area. This time includes sick leave, study leave, annual leave, maternity leave, parental leave, paternity leave, force majeure leave, adoptive leave, unpaid leave, compassionate leave etc. An accurate calculation of time-out is critical to the recommendation of a staffing establishment, as its exclusion results in significant demands on the service for replacement.

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 each day for that period was calculated. The figures collected included the total numbers of WTE’s. In addition to collecting the figures on the total number of WTE’s within the unit, the amount of time out was also recorded. The calculation of time-out was recorded as WTE’s also.

Validity and Reliability

One of the prime issues in any audit project is the requirement to ascertain the validity and reliability of the audit tools. Firstly considering Birthrate Plus. Birth rate plus is an internationally tested tool and therefore the validity and reliability of this tool is well established. The midwifery activity analysis tool is based upon an equally well established tool utilized throughout the United Kingdom (U.K) by Professor Keith Hurst. Nonetheless for the purposes of this project the tool was modified to audit activity in the midwifery setting. In order to establish the validity and reliability of the modified tool, a
pilot study was performed. Consequently the pilot study confirmed the validity and reliability of this tool. Similarly the quality survey was also piloted. As a direct result of the pilot the quality survey was revised and re-audited to establish its validity and reliability.

The questionnaire on role clarification is a well established tool developed and utilized throughout the U.K. by Professor Keith Hurst.

**Pilot study**

The benefit to conducting a pilot study is not only to test the validity and reliability of the tools but indeed to also facilitate familiarity with the tools and the process by the auditors. More importantly for this project which was using newly devised and modified tools, the pilot study was invaluable. As a consequence of a pilot of all tools utilized in the project necessary changes were made in addition to confirmation of the validity and reliability of the tools.
Introduction

Collection and collation of the data from each of the approaches of the project was completed by the project team. Data collated from Birthrate Plus was then sent for analysis to Marie Washbrook of Birthrate Plus. Collated data from the remaining project approaches were sent to Professor Keith Hurst for final analysis. The findings from each approach are presented herein.

Birthrate Plus

From the 2 months casemix of births for the period of the project, the number of annual births has been estimated at 9000. This is an increase on the previous Birthrate Plus study completed in the National Maternity Hospital in 2005, which recorded annual births at 8400.

The postnatal staffing is based upon the casemix and average midwife hours applied to the 5 categories rather than the average length of stay based on all births. The casemix on 2 month’s data is as follows:

Table 1.0

<table>
<thead>
<tr>
<th>Casemix</th>
<th>CAT I</th>
<th>CAT II</th>
<th>CAT III</th>
<th>CAT IV</th>
<th>CAT V</th>
</tr>
</thead>
<tbody>
<tr>
<td>I/P</td>
<td>8.0</td>
<td>16.1</td>
<td>17.2</td>
<td>42.1</td>
<td>16.6</td>
</tr>
<tr>
<td>P/N</td>
<td>8.0</td>
<td>16.1</td>
<td>44.6</td>
<td>14.7</td>
<td>16.6</td>
</tr>
</tbody>
</table>
The intrapartum casemix was adjusted to move 65% of the Category IV cases to Category III, as in the 2005 study, it was estimated that a significant % of Category IV cases were women having an epidural with normal birth, so were not ‘high risk/need’ in the postnatal period on average. The casemix in this study however reveals more women in the lower categories.

For this study, it has been assumed that the clinical profile is similar to that of the previous Birth Rate Plus assessment in 2005 with the average midwifery hours remaining as in 2005, namely:

- 6 hours for Categories I and II
- 8 hours for Category III
- 17 hours for Category IV
- 24 hours for Category V

**Occupancy and Dependency**

As stated previously each of the mothers on admission to the postnatal unit were categorized according to their Birthrate Plus category scoring. The following table outlines the average occupancy for Unit 7 during the period of the project in addition to the percentage categorization within each Birthrate Plus category scoring.
Table 2.0

<table>
<thead>
<tr>
<th>Source</th>
<th>Occupied Beds</th>
<th>Cat I</th>
<th>Cat II</th>
<th>Cat III</th>
<th>Cat IV</th>
<th>Cat V</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NMH UNIT 7</td>
<td>21.4</td>
<td>9%</td>
<td>17%</td>
<td>19%</td>
<td>23%</td>
<td>32%</td>
</tr>
<tr>
<td>2</td>
<td>Hourly Minutes</td>
<td>2.9</td>
<td>3.8</td>
<td>5.7</td>
<td>6.3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Direct care ratios</td>
<td>1</td>
<td>1.3</td>
<td>2</td>
<td>2.2</td>
<td>2.5</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.0 demonstrates proportionally the number of higher dependency mothers. Direct care ratios (Row 3) which are calculated directly from Row 2 are a crucial dataset. Row 3 ratios are known as ‘lie-detectors’ as they test the assumption that the highest mother and baby category (in this instance category V) receives at least double the care than in Category I. The data reflects an incremental rise in the amount of midwifery time delivered to the most dependent category of mothers (Cat V) which is expected. Therefore these results are good evidence that the auditors completed the category scoring accurately. Row 3 also demonstrates that Birthrate Plus categories discriminate between low and high dependency mothers. Finally these results indicate that non-participant observers were allocating Unit 7 staff activity appropriately. These results are encouraging, as rarely do workload measuring instruments get it right first time. Indeed these results clearly indicate that the modified tool was valid and reliable.

Looking more closely at the data the figures for Cat IV and V mothers are higher than that of their UK counterparts, which may be attributable to an underdeveloped community midwifery service.
Midwifery Workload

Ward and bed workloads are standardised values that drive ward staffing. Workload also significantly affects nurse retention, sickness and job satisfaction. Workload in both general and midwifery specialities are calculated in the same way using:

(a) the amount of direct (face-to-face) nursing/midwifery care each patient/mother and baby receives; and
(b) case mix (patients/mothers and babies in each dependency category).

Higher workloads signify heavier work and a simple way of interpreting workload numbers is to treat them as the equivalent number of Birth Rate Plus Category 1 mothers and babies (e.g., 43 in the table below) in the unit or in each occupied bed (e.g., 2). Both unit and bed workloads need reporting since small units generate deceptively low ward workload indices. This is a snapshot and varies day-to-day.

Table 2.1

<table>
<thead>
<tr>
<th>Source</th>
<th>Ward workload</th>
<th>Bed workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMH Unit 7</td>
<td>43</td>
<td>2</td>
</tr>
</tbody>
</table>

Once again this is virgin territory so the interpretation of this data is challenging without additional data for comparison

Midwifery Activity Analysis

As previously stated the data was collected by non-participant observation in the unit and categorised into four sections:
• Direct midwifery care.
• Indirect midwifery care is activity that is marginally removed from the mother/baby, however is no less-important than direct care.
• Associated work includes non-midwifery tasks such as cleaning.
• Personal time is unproductive periods, such as meal breaks and personal study. Additionally ‘other’ in this instance relates to the re-deployment of staff to other clinical areas as required.

This data was analysed under the four categories utilising a software programme, and sent to Professor Keith Hurst for analysis. The figures presented reflect overall midwifery activity times based on the data collected and staffing grade.

In the following table, sub activities of the main categories (in italics) reveal the midwifery team working styles precisely into percentage time spent.
Table 2.2 Midwifery activity analysis by Grade

<table>
<thead>
<tr>
<th>Activity</th>
<th>Unit 7 All</th>
<th>Unit 7 CMM</th>
<th>Unit 7 Registered Midwife</th>
<th>Unit 7 Rostered Student</th>
<th>Unit 7 Midwifery Care Assistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity count</td>
<td>2117</td>
<td>380</td>
<td>1101</td>
<td>243</td>
<td>218</td>
</tr>
<tr>
<td>Direct Care %</td>
<td>41</td>
<td>28</td>
<td>48</td>
<td>53</td>
<td>24</td>
</tr>
<tr>
<td>Ward attend (m)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ward attend (b)</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Communicate</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Nutrition (m)</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Nutrition (b)</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Elimination (m)</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Elimination (b)</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Medication</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Mobilise</td>
<td>&lt;1</td>
<td>0</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>3</td>
</tr>
<tr>
<td>Vital signs (m)</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Vital signs (b)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>Specimens (m)</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Specimens (b)</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Mid Procedures (m)</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>Mid Procedures (b)</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Admit/Disch/TF</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Teaching mothers</td>
<td>1</td>
<td>&lt;1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Assist Dr’s</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Assist Others</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Indirect Care %</td>
<td>27</td>
<td>39</td>
<td>30</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Charting</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>9</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Reporting</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Comm. Patients</td>
<td>4</td>
<td>12</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Com. Relatives</td>
<td>&lt;1</td>
<td>1</td>
<td>&lt;1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Teaching learners</td>
<td>2</td>
<td>2</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>Associated %</td>
<td>14</td>
<td>19</td>
<td>8</td>
<td>3</td>
<td>42</td>
</tr>
<tr>
<td>Cleaning</td>
<td>7</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Meals</td>
<td>&lt;1</td>
<td>0</td>
<td>&lt;1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Clerical</td>
<td>&lt;1</td>
<td>4</td>
<td>&lt;1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Communicate</td>
<td>&lt;1</td>
<td>2</td>
<td>0</td>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>Errands</td>
<td>&lt;1</td>
<td>0</td>
<td>&lt;1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Supplies</td>
<td>2</td>
<td>2</td>
<td>&lt;1</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Meetings</td>
<td>2</td>
<td>3</td>
<td>&lt;1</td>
<td>0</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Supervising</td>
<td>1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>0</td>
</tr>
<tr>
<td>Personal %</td>
<td>18</td>
<td>14</td>
<td>15</td>
<td>22</td>
<td>30</td>
</tr>
<tr>
<td>Personal</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unoccupied</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Breaks</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

(m) denotes Mother  (b) denotes Baby
Examining the results presents some challenges as there is no available data for comparison. It is possible to consider comparison with Nursing activity however this too presents difficulties in terms of the comparability of the key measurables.

Most encouraging is the completion of most non midwifery work by Health Care Assistants. This is to be highly commended. Equally however, on first impression one might mistakenly be of the view that the staff of Unit 7 are less patient centred. This however must be placed in the context of the care setting whereby mothers are actively encouraged and supported to care for themselves and their babies in preparation for discharge. Conversely, is the proportionately high level of unoccupied time by Health Care Assistants which deserves closer examination. Time away from the unit for ‘other’ (as denoted on the activity analysis) by Health Care Assistants is considerably high which was revealed to be redeployment to another unit (namely operating theatre) on relief.

**Midwifery Quality Survey**

Midwifery quality scores were derived from the newly devised Quality Survey (QS) and included questions categorised as:

- Mother and baby assessment completeness and timeliness (29 standards).
- Nature and value of care plans drawn from assessments (11 standards).
- Nature, timeliness and completeness of interventions suggested in the care plans (29 standards).
- How care is evaluated, notably outcomes (16 standards).

Each mother and baby in the study was exposed to 85 quality standards. Consequently, almost 2000 Unit 7 standards were tested.
Table 2.3 Midwifery Quality

<table>
<thead>
<tr>
<th>Source</th>
<th>Assessment</th>
<th>Planning</th>
<th>Implementation</th>
<th>Evaluation</th>
<th>Overall</th>
<th>Standards tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 7</td>
<td>83%</td>
<td>44%</td>
<td>66%</td>
<td>75%</td>
<td>72%</td>
<td>2000</td>
</tr>
</tbody>
</table>

Overall the quality scores are encouraging, although why planning has declined is worth investigating.

Time Out

Time-out’s importance is clear when nationally at any time almost one ward staff in five is away from the ward owing to sickness/absence, maternity, compassionate, annual and 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 2.4 Time Out

<table>
<thead>
<tr>
<th>Source</th>
<th>Time Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 7</td>
<td>18.2%</td>
</tr>
</tbody>
</table>

Unit 7’s time out in comparison to national and international standards appears to be lower. Indeed the standard allowance for time-out applied within the Birthrate Plus approach was 20% as this the acceptable level of time-out. It is also interesting to note that this lower time-out figure reflects a time when the statutory entitlement for maternity leave was increased from 22 to 26 weeks. In determining and recommending adjustments to staffing establishments it is necessary to take cognizance of current or planned alterations to statutory leave entitlements as these will have a direct impact on such adjustments or recommendations.
In embarking on this landmark project, an acknowledgement of the limited benchmarks at this stage was recognized as a challenge to the interpretation of the findings. Similarly the small dataset was also a cause for caution in the interpretation of the results. Nonetheless the accuracy, validity and reliability of the data findings is reassuring for both current and future projects of this nature in order to build and establish a minimum dataset upon which to draw comparison for benchmarking purposes. Certainly the success of this project lays a sound foundation upon which to build.

Firstly examining the Birthrate Plus data we can draw comparison from the completion of the Birthrate Plus findings of 2005. The annual number of births in this period from 2005 to current has increased from 8400 to 9000. Hence it is reasonable to assume that the level of activity in the National Maternity Hospital has increased in accordance with the increase in births. The Birthrate Plus approach also applies a scoring system that categorises each birth upon clinical indicators. Systematically comparing the casemix and categorization of births from 2005 with the current data it is clearly evident that the dependency/category of mothers is also changing with an increase in the number of category I, II, III and V mothers requiring care in the postnatal setting. In exploring some of the possible reasons for this shift in dependency, one such reason may be attributable to the underdevelopment of the community midwifery services, which is not unique to the National Maternity Hospital. A dearth of community midwifery services places increased demands on the in-patient postnatal service and hence may be a possible reason the changing patterns in dependency. Combining the increase in the number of births with the increase in the dependency of the mothers for care, results in a subsequent increase in the demand for midwifery services in the postnatal setting. These shifting patterns require particular attention when deciding on skill mix and overall staffing establishment as well as considering areas for further growth and development such as community midwifery services.
Midwifery activity within this project has come under intense scrutiny with the completion of a midwifery activity analysis study. Consequently, this has revealed some interesting features of the service that are to be highly commended as well as requiring greater attention. Overall the results are quite encouraging as midwifery activity is predominantly patient centered with limited time being spent by midwives on associated work. One of the common criticisms in the field of workforce planning is the inefficient use of skills on work and practices that can and should be done by another more suitable resource. In this instance the opposite has been revealed with a significant proportion of the work being completed by those with the appropriate skills. Undoubtedly the time of the Clinical Midwife Manager is being spent effectively on managing the unit with the greatest proportion of time on indirect care and not on direct care which is sometimes the case. Therefore the resource of the Clinical Midwife Manager is being utilized effectively and efficiently.

Of interest however is the absence of interventions by Health Care Assistants. Such interventions include completion of vital signs, teaching mothers or gathering specimens. Furthermore this is mirrored in indirect care with Health Care Assistants delivering as little as 3% of indirect care including communication with relatives, communication about mothers’/baby’s care, teaching learners, reporting and charting. More notably however is the scope for development of these roles by Health Care Assistants as identified in the role clarification workshop. Subsequent education and training of Health Care Assistants may lead to expansion in this role as a more appropriate, effective and efficient use of this resource.

One particular aspect of the project demanding further attention is the unexpected amount of unoccupied time being spent by Health Care Assistants. Similarly the overall time being spent on meal breaks requires attention. This however may be addressed in the current negotiations on the introduction of the 37.5hour working week which would seek to manage and rationalize meal times to an agreed acceptable level. Keeping with unoccupied time, the level of ‘other’ time away from the clinical area by Health Care
Assistants was quite significant at 17% from an overall total of 30%. This time was primarily recorded as redeployment of the Health Care Assistant from another unit namely the operating theatre. Once again, this would need to be questioned whether this is an effective and efficient use of this resource.

Reengineering the staffing establishment based upon developments in role clarification reflected in the overall skill mix should be considered carefully on the basis that such measures may impact on the quality of care that is delivered. Therefore a quality survey ought to be repeated following reengineering to ascertain the impact on the quality of the care delivered.

Considering the results of the quality survey, overall the results are very reassuring. The Unit scored considerably high in a number of the areas which is to be applauded. The area requiring further attention is the drop in the score for Planning of care. It would appear from the findings that Midwives are failing in their duty to record evidence relating to the planning of care for mothers and their babies. Indeed a possible reason for this may be attributable to the turn over of mothers in the postnatal setting and the limited time for Midwives to plan care over a short period of time, in addition to the demand for accurate records to reflect care between admission and discharge which can be quite short. That being said planning is a fundamental aspect of care and due consideration should be given to the institution of measures to improve documentation. The introduction of additional standardized care plans may need to be considered in this instance. Further consideration to the role of the Ward Clerk in the completion of records on admission and discharge may ease the intensity of the demand for Midwives to complete repetitive documentation. Therefore leading to an improvement in the planning phase of midwifery care documentation.

Finally most encouraging is the time-out percentage which is critical considering that nationally on average one in five nurses/midwives are away from the ward/unit at any time owing to leave such as sickness/absence, maternity, compassionate, parental, annual
and study leave. For Unit 7, time-out was calculated as just 18.2% which is lower than the national average of 20%. The staff of Unit 7 are to be applauded for this low time-out level. The significance of the time-out level is based upon the reliance of replacement staff, which in extreme situations can have a negative impact on the quality of the care delivered in addition to a negative impact on the nursing team leading to poor morale, further absence and retention issues.

Surveillance of this time-out figure is also necessary to ensure that adequate amount of time is being allocated to study leave which is essential to the growth, development and quality of any service.
Recommendations from Birth Rate Plus

The recommendation from Birth Rate Plus for postnatal staffing is 73.78 WTE’s. This figure however is for all postnatal care of the National Maternity Hospital and does not include additional staffing required to account for ward attenders to the postnatal units. Currently within the National Maternity Hospital there are 5 units delivering postnatal care to mothers and infants, of which Unit 7 is the largest. Unit 7 is comprised of 22 beds with additional capacity of up to 6 extra beds as required. Calculating the establishment of Unit 7 from the total WTE figure of 73.78 results in a staffing establishment of 21.14 WTE’s. This however does not include the additional staffing for ward attenders or additional capacity in postnatal readmissions and newborn discharge examinations.

Recommendations from Professor Keith Hurst on staffing establishment and skill mix

Three staffing datasets appear in Table 3 below:

- ‘actual’ staffing includes substantive posts plus bank, agency and overtime hours converted into WTEs;
- ‘temporary’ staff indicates what proportion of actual staffing was bank, agency and overtime; and
- ‘recommended’ staffing based on average dependency mix.

Staff-to-occupied bed ratios rather than ward establishment is used as a staffing benchmark. That is, variations in the size of units being compared make ward comparisons meaningless unless bed values are used. Recommended staff mix is based on a role clarification exercise that has been used elsewhere in the UK. In this instance the project team allocated 103 midwifery activities (for which we have activity data) to (e.g., CMM1) job descriptions. Allocations were based on two criteria: (i) who is competent to do the work; and (ii) who should do the work?
Table 3. Midwifery Staffing and Grade mix

<table>
<thead>
<tr>
<th>Source</th>
<th>Average Occup’cy</th>
<th>Total</th>
<th>CMM 2</th>
<th>CMM 1</th>
<th>RM</th>
<th>Post Reg/Rostered student</th>
<th>HCA</th>
<th>Bed Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTUAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Unit 7 WTE per bed</td>
<td>21.4</td>
<td>0.98</td>
<td>0.05</td>
<td>0.23</td>
<td>0.51</td>
<td>0.14</td>
<td>0.05</td>
<td>€126</td>
</tr>
<tr>
<td>2 Unit 7 actual WTEs</td>
<td></td>
<td>21</td>
<td>1</td>
<td>5</td>
<td>10.9</td>
<td>3.1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3 Staff mix</td>
<td></td>
<td>100%</td>
<td>5%</td>
<td>23%</td>
<td>52%</td>
<td>14%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>4 Temporary staff</td>
<td></td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RECOMMENDED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Recommended WTE per bed</td>
<td>21.4</td>
<td>1.09</td>
<td>0.05</td>
<td>0.2</td>
<td>0.39</td>
<td>0.45</td>
<td>0.45</td>
<td>€119</td>
</tr>
<tr>
<td>6 Recommended as WTEs</td>
<td></td>
<td>23.3</td>
<td>1</td>
<td>4.3</td>
<td>8.4</td>
<td>9.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Staff mix</td>
<td></td>
<td>100%</td>
<td>4%</td>
<td>19%</td>
<td>36%</td>
<td>41%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall the actual staffing skill mix in Unit 7 is quite rich. The recommended staff in Rows 5 and 6 shows that Unit 7 is slightly understaffed based on average workload. Temporary staff use was low (Row 4). However, in view of the staffing shortfall, there may be an argument for converting temporary staffing into substantive posts.

The expert group on role clarification and staff mix model, based on work allocated to staff grades (discussed above), recommends a shift from Registered Midwives to Health Care Assistants. Unit 7’s running costs stay similar despite the staffing uplift, owing to the shift to Health Care Assistants.

For the purposes of the recommended staffing the Post Registration and Rostered students in Row 1 and 3 have been incorporated into the recommended Registered Midwife posts in Row 6. This can however be changed based upon replacement ratios as necessary.

Even with a slight staffing increase the overall costs of Unit 7 will fall owing to the shift to Health Care Assistants. Recommended staffing is based on a 39hour week which will require adjustment to 37.5 hours as appropriate.
Currently Unit 7’s time out is low however as the database builds over time a best-practice ward time-out will emerge.

In Summary, Unit 7 is very efficient and effective considering their current staffing establishment is below that which is recommended. The recommended re-engineering of the staffing establishment will result in greater efficiency of the service without significant cost implications as the table demonstrates.

**Recommendations from the National Maternity Hospital and the RCSI ILHM**

- **Midwifery documentation**

Evidence of planning in the midwifery documentation was identified as an area for improvement within the project findings. In addressing this area the suggested improvement is to explore options for the development of standardized care plans or methods to easily and accurately recording evidence of care planning. Furthermore, examining the role of the Clerical Officer in the completion of admission and discharge information may also enhance the documentation process. Due consideration for the implementation of electronic data recording is a recommendation for the future.

- **Development of the Health Care Assistant Role**

As a direct result of the midwifery activity analysis in addition to the role clarification exercise it is clearly evident that expansion in the role of the Health Care Assistant (HCA) is not only appropriate but necessary. The role of the midwife has changed throughout the years and is now much broader. Many traditional midwifery duties were identified during the role clarification exercises which do not require the expertise of a qualified midwife.
As identified in the study the HCA role needs to be utilised more effectively in relation to direct patient care such as teaching mothers, assisting the midwife in caring for mothers, babies and the family unit. To facilitate this, the NMH needs to further develop its education and training programme to provide the HCA with the necessary knowledge and skills to work more effectively in providing patient care under the direction and supervision by a midwife.

Concentrating on the education and development of this role will provide an efficient and effective resource within the Midwifery team. Indeed comparisons can be drawn from the Nursing service whereby education and training of Health Care Assistants has furnished the service with a valuable resource. As a consequence of development of the Health Care Assistant Role the skill mix may be reengineered to provide a more effective and efficient service driven team.

- **Unoccupied/Personal time**

The study findings revealed an unexpected amount of not only unoccupied time but ‘other’ time which was predominantly redeployment of Health Care Assistants to the operating theatre most notably at night. Focusing on this area for development the recommendation in this situation is to redeploy a substantive post of Health Care Assistant to night duty in the operating theatre where this resource may be utilized more effectively and efficiently.

Concentrating on personal meal breaks it is anticipated that this area for development will be addressed in the current on-going negotiations for the introduction of the 37.5 hour week with more streamlined meal breaks.
• Development of Community Midwifery Service

Revealed in the report is the increase in the number of higher Birthrate category mothers occupying the postnatal unit. In similarity to their Nursing counterparts in the Acute Hospital setting length of stay is adversely affected as a consequence of poorly developed community services on which to discharge patients. Within the midwifery sphere, this position can be eased with the growth and development of community Midwifery services to support the mother and baby in their own home and thus facilitate earlier discharge from the hospital setting.

• Time-out figures

Time-out figures in the study revealed an unusually low level of time out. Accurate time-out figures that take cognizance of all leave including study leave are critical to determining the most appropriate and accurate staffing establishment. Therefore surveillance of this time-out figure is necessary to ensure that an adequate amount of this time is being allocated to study leave which is essential to the growth, development and quality of the service.

• Harness the Role of the Clinical Midwife Manager as Role Model

The observation of the role of the Clinical Midwife Manager was unveiled as an effective and efficient managerial role. The division of the role was divided proportionately and appropriately between direct and indirect care. In an ever increasing era of economic uncertainty coupled with demand for value for money this is to be highly commended and recommended as the role model and template for Midwifery Managers across the Midwifery Service.
• Generating robust data sets and Re-audit

A final recommendation is to re-audit within one year of completion of the study and implementation of the recommendations. This is to ascertain the benefits of implementing the recommendations such as the impact on the quality of service delivery as a result of reengineering the units’ skill mix profile. In addition, the generation of a robust data set is required, which would involve the recruitment of other units to audit and add to the data set. Ideally what is required is a National project, building a national dataset.

Conclusion

Undertaking this project presented an opportunity for the maternity services of not only the National Maternity Hospital but indeed on a broader scale, Maternity services in Ireland as a whole. The timing of this project was appropriate in a climate of economic questioning on value for money within the delivery of health care to the Irish population. Planning the workforce places service delivery at the centre in the identification of the most appropriate skill-mix and number of staff to deliver an effective, yet efficient service. This project takes skill-mix further in scrutinizing how the service is being delivered, and observes whether resources are being used appropriately and efficiently.

This project should not however be a stand alone project, but the foundation upon which to build a National Dataset through a National Workforce planning project.
REFERENCES


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