The Role of IT in Facilitating the Centralised Co-ordination of Agency and Bank Nursing within an Acute Hospital

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Abstract Healthcare organisations have to operate within finite resources. It is widely acknowledged that supplementary agency and bank nurses are needed to fill vacant hospital shifts that cannot be filled by permanent staff. In Ireland a project was initiated in the main Dublin Academic Teaching Hospitals, to centralise the coordination of all Bank and Agency activity within each individual institution. This paper outlines the necessity for such a move, and describes the steps one hospital has taken in developing and implementing an electronic Nursing Bank Management System.

1. Introduction

It has become commonplace for many countries to have to use Bank and Agency nurses to fill vacant shifts in hospitals that cannot be filled by permanent staff [1][2][3]. In Scotland supplementary staff accounted for 4.7% of the total nursing resource in 2002/2003 [2], while in Western Australia they accounted for 8% [3]. The cost of these supplementary staff is substantial. There are two main sources of supplementary nursing staff – nurse banks and nursing agencies. Bank nurses are contracted by a hospital to work on as "Hours as Required" basis, often at short notice, to cover for planned and unplanned shortfalls in staffing. Agency nurses are employed by a hospital through a third party, commercially driven, organisation. An administrative fee is paid to the nursing agency together with a remuneration cost for the nurse supplied [2]. In this hospital the administrative fee charged by the nursing agencies is 10%, together with Value Added Tax (VAT) of 21%.

As agency nursing costs are more expensive than bank nursing costs it is logical to assume that increasing the use of bank nurses while concurrently reducing the reliance on agency nurses has cost saving implications for hospitals. In 2002-2003 the National Health Service (NHS) in the United Kingdom spent ₤628 million on agency nursing alone. Through a number of initiatives, including increased use of bank nurses, they managed to reduce this bill to ₤545 million in 2003-2004 [4]. NHS Scotland spent ₤29.7 million on agency nursing in 2004 [5]. Expenditure on agency nurses in the Republic of Ireland for 2004-2007 is detailed below in **Table 1**. It was not possible to find any figures outlining bank nursing costs.

Table 1 – Cost of Agency Nursing

Year	**2004**	**2005**	**2006**	**2007**
Cost (€)	42,942,352	62,871,783	79,028,393	63,693,124

HSE 2008 [6]

This paper describes the background to, work process change and implementation to date, of a Nursing Bank Management System in the Mater Misericordiae University Hospital (MMUH), Dublin. In the MMUH the term bank nurse refers to two categories of nurses, those already mentioned above and also those nurses already employed by the hospital on substantive posts who work extra overtime shifts. In this paper the term "bank nurse" is a collective name for both these categories of bank staff.

2. Background to project

In 2006 the Dublin Academic Teaching Hospitals (DATHS) commenced a Value For Money (VFM) initiative, the aim of which was to centralise the coordination of all Bank and Agency activity within each of the DATHS Hospitals. It was hoped that this centralised, coordinated approach within each hospital would result in a reduction in the overall supplementary nursing costs. The DATHS, a collective term for the five main Irish academic tertiary referrals hospitals, are listed below:

1. The Adelaide & Meath Hospital Incorporating the National Children's Hospital
2. Beaumont Hospital
3. Mater Misericordiae University Hospital
4. St James's Hospital
5. St Vincent's University Hospital

In 2007 the Health Service Executive (HSE), the organisation responsible for Health provision in the Republic of Ireland, outlined its intention of developing an active Value for Money (VFM) and cost reduction plan for 2007-2010. The estimated savings during this period are projected to be €500m [7]. A Cross Directorate Group to review expenditure on overtime and agency was established. Due to financial cost containment measures a ban on recruitment was also introduced in September 2007. This ban has been lifted for 2008 but there are strict controls in place to prevent any growth in staff numbers above authorised levels [8]. The HSE have also set a target saving of €55m on expenditure on Overtime and Agency costs in 2008 [9]. It is therefore vital that all processes that have the potential to reduce the Agency and Bank nursing costs are introduced.

2.1 Development

Of 88 nurse banks operating in Scotland 74% of these operate without any Information Technology (IT) support, relying instead on paper-based manual systems, although the recommendation is for the nursing banks to use computerised nurse bank management systems. 50% of the nurse banks with IT support used self-generated spreadsheets or databases, rather than functional nurse bank software systems [2]. The DATHS recognised the importance of introducing a software system to facilitate the organisation and management of the nurse bank project. Of the 5 DATHS Hospitals, the MMUH had an integrated nurse rostering system, part of an integrated Nursing

Information System, already in place. It was decided that this system could be further developed to include a Nursing Bank Management System.

The MMUH is an academic teaching hospital located in Dublin city and serves both the community of North Dublin as well as the rest of the country with its tertiary services. The Integrated Rostering System (IRS) was introduced into the hospital in 2001. It has four components:

1. Intragale – Allows staff to enter requests or self-roster their schedule according to ward requirements. Staff can also view and print their roster and communicate with their manager through a messaging function.
2. ShiftMaker – Used by Nurse Managers to create and manage their rosters.
3. Credential Manager – Manages and reports on mandatory training, classes, competencies and expiry dates within the hospital.
4. Central Staffer – Used by senior Nursing Managers to view more global staffing levels in the hospital in real time or for any given date and time.

A reports module was developed in-house to allow for the extraction of information from ShiftMaker under a number of categories, such as Annual Leave, Sick Leave, Payroll, and display it in a standardised format. Payroll for bank and agency staff, prior to system implementation, was submitted on paper. The MMUH Bank Management System, developed in-house and accessed through the reports module, is a complementary component of the rostering system. Vacant ward shifts are communicated to the Bank office, while concurrently, staff notify the Bank office of their availability to work overtime. By synchronising available staff and vacancies, the Bank Management System facilitates the selection of suitable staff to fill vacant shifts as they occur.

2.2 Workflow Process

A bank office was opened to centrally coordinate and manage this project. A Bank Manager and a clerical support person staff this office. The Bank Manager works closely with Nursing Human Resources, Divisional Nurse Managers and the Finance Department and the Information Management Services Department. All hospital staff wishing to work extra bank shifts register with the bank office. Nurses on "Hours as Required" contracts are employed directly into the nursing bank. Bank staff indicate their availability for shifts through Intragale, a component of the IRS. Intragale can be accessed through the hospital Intranet or from home through secure web access. Because of the variety of shift times on the wards, four generic shift types (morning, evening, long day and night) have been set up for staff requests, which broadly cover the range of shifts on the wards.

The Bank Management System has been developed to support the workflow process that was already in place for sanctioning the filling of vacant shifts. At ward level the Clinical Nurse Manager (CNM) sends vacant shifts to his/her Divisional Nurse Manager for approval. As well as indicating the times of the shift/s to be filled the CNM also enters the reason the shift needs to be filled from a standardised list within the IRS. The Divisional Nurse Manager then either approves the filling of the shift or rejects it. Only the approved shifts are visible to the Bank office. As the vacant shifts are filled the information related to the date the shift is assigned, who assigned it and

the name of the nurse filling the shift is populated in the "Approved" box. Access to the ward vacancies screen (**Figure 1**) is permissions based.
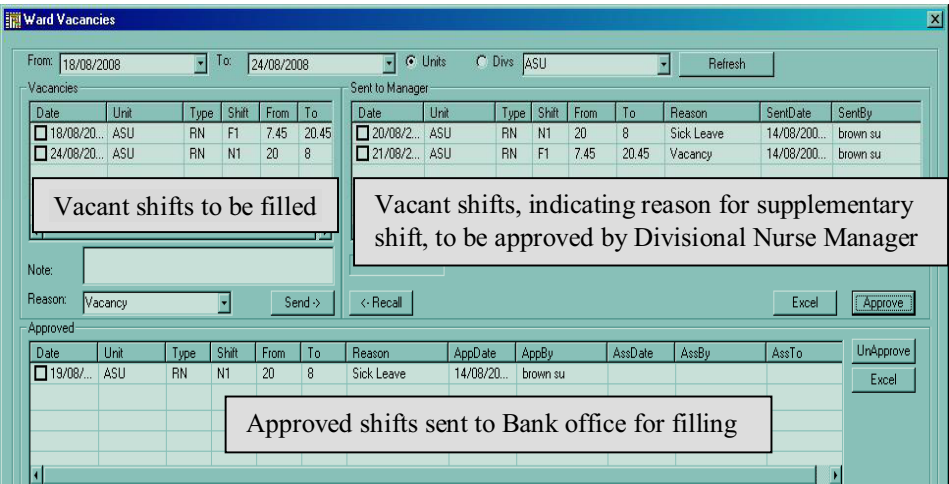

Figure 1 - Ward Vacancies screen

In the bank office using the "Manage Bank" screen of the Bank Management System (**Figure 2**) staff requests are uploaded to the Preferences box. In the lower "Vacancies" box authorised vacant shifts are uploaded. Vacant shifts are then matched to suitable staff based on a number of categories. It is also possible to give a bank shift to a nurse whose name does not appear in the preferences box by selecting the command "Pick from Roster".
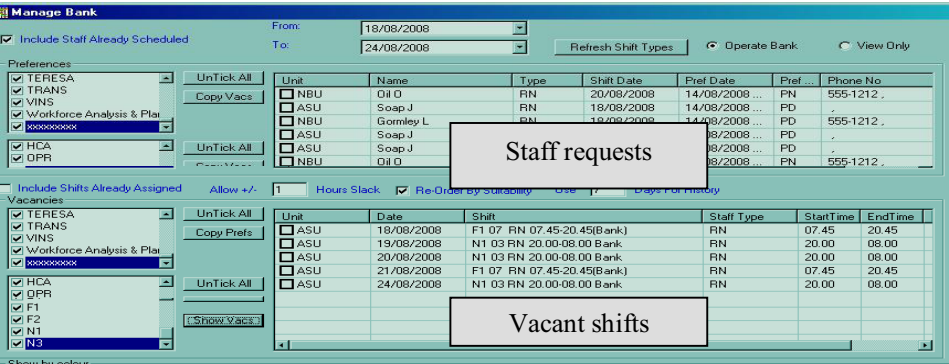

Figure 2 - Manage Bank screen

Once a shift has been assigned to a particular nurse the shift itself, and all overtime payments attached to that shift, are automatically entered into the appropriate ward in ShiftMaker. As the shifts are filled the CNM and Divisional Nurse Manager can see the date it was assigned, who assigned it and the name of the person filling the shift in the Approved box in the Ward Vacancies screen.

2.3 Implementation

Implementation of the MMUH Bank Management System has been slow. Due to the numerous change management issues surrounding the processes of changing from localised to centrally managed nurse banking, the system is being introduced on a phased basis. At present all shifts for nurses on "Hours as Required" contracts are allocated through the Bank Management System and payroll information for salaries is pulled on these staff from the IRS. This group of bank nurses has grown considerably from 1 in October 2007 to 35 in September 2008. The number of nurses in substantive posts in the hospital who have also registered with the nursing bank presently stands at approximately 300 and continues to increase. All requests by nurses for bank work are made through the system. The next step in the implementation process is for the Clinical Nurse Managers to send vacant shifts to be filled to their Divisional Nurse Manager for approval. Once that process is in place the Divisional Nurse Managers can approve them electronically.

3. Results

Even though the system is not yet fully implemented savings have already been made. Exact figures are not yet available however, in the Division of Surgery, a division that has utilised the centrally allocated bank staff from this project's inception, the use of agency nurses has fallen substantially. **Figure 3** below compares the Division's Agency and Bank usage for the same month in 2007 (pre-implementation) and 2008 (post-implementation). The reduction in the use of agency staff is clearly illustrated. Conversely there has been an increase in bank usage. One factor may have contributed to this increase. Due to pressures on the hospital it has been necessary, intermittently, to open short stay wards for patients over weekends. These areas would not normally be staffed at weekends so extra staff would have been needed to staff them.
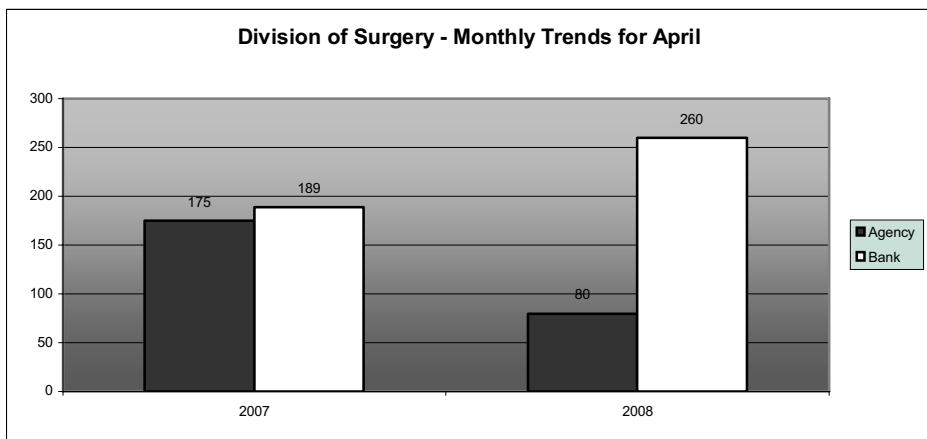

Figure 3 - Bank and Agency usage

4. Discussion

Introducing any new workflow process within a hospital can result in challenging change management issues. There were two issues involved here, firstly centralising a devolved practice and secondly introducing an electronic Bank Management System to efficiently and effectively coordinate and manage such a large-scale endeavour. While it would have been advantageous to fully implement the system from the beginning, in practice this has not occurred. Instead it is being implemented on a phased basis. In the long term this may turn out to be a better approach as it may potentially lead to better user acceptance of the centrally managed service.

The project itself is having the desired financial effect, mainly a reduction in the overall supplementary nursing costs. While agency-nursing expenditure has decreased there has been an increase in the use of bank nurses. However, it was never envisaged that this value for money initiative would result in the elimination of all overtime work in the hospital but rather, that savings would be made by reducing the reliance on the most costly agency nurses. In order to make this transition it was obvious that the use of bank nurses would increase.

5. Conclusion

In the current Irish climate of healthcare budgetary economies it is vital that all efforts to reduce hospitals' financial costs are explored. It has been proven that significant financial saving can be made in the nursing budget by reducing hospitals reliance on agency staff and utilising more bank staff. This project, a DATHS Value For Money initiative, though currently in the early stages of implementation, is already resulting in similar financial benefits. A Computerised Nurse Bank Management System, such as that developed by the MMUH, is essential to effectively and efficiently organize, manage and report on such a large-scale project. This electronic system is already helping to streamline this process but the complete benefits will only be finally realised when the system is fully implemented.

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