Innovation
Rostering

Using nursing measurements to improve managerial decisions at a large teaching hospital ultimately improves care

Does staff eRostering boost patient outcomes?

In this article...
- The concept of electronic rostering (eRostering)
- How to use staffing information to support patient care
- How to use nursing tools to understand patient outcomes

Author Rachel Finn is service improvement lead, Nottingham University Hospitals Trust.

Abstract Finn R (2013) Does staff eRostering boost patient outcomes?

The introduction of eRostering to Nottingham University Hospitals Trust highlighted several nursing issues that needed to be addressed but had not previously been fully understood. The eRostering system has given ward managers a better understanding of nursing availability, which has led to improved patient outcomes.

Health-specific electronic rostering (eRostering) systems have been available for many years in the UK, supplied through three main providers – Allocate Software, McKesson and SMART. The various systems assist staff with writing rosters through several key functions:
- Highlighting the demands of the service and workforce;
- Registering staff availability;
- Calculating unsocial hours;
- Producing summary sheets and links to payroll;
- Producing reports.

eRostering at NUH
Nottingham University Hospitals Trust (NUH) is a 1,700-bed, split-campus, acute teaching hospital. Nurses and support staff account for almost 50% of the 13,500 employees. The trust introduced eRostering between 2009 and 2011, using Allocate Software’s Healthroster software.

Of the current 5,400 users of the eRostering system, 95% are nursing staff on wards and departments open 24 hours, where the greatest benefits can be seen. The most challenging areas have been maternity, critical care and theatres. While using an electronic system continues to be challenging for some, most staff understand and use the system well, and ward managers and matrons are continually learning how to make use of all its functions.

However, some staff prefer traditional methods of off-duty planning. Staff members have reported that, with eRostering, rosters are made too far in advance and others feel they have lost the personal touch in requesting or allocating shifts.

There is a growing body of evidence that the nursing establishment can influence patient outcomes, patient experience, quality and the efficiency of care delivery. Rafferty et al (2007) reported a 26% higher mortality rate for patients with high patient-to-nurse ratios; these nurses were also more likely to report a low or deteriorating quality of care on their wards. Through eRostering, NUH has been able to both measure and understand the effect of rostering practice on nursing (Box 1 lists ways rostering is used at NUH).

Ward managers have informally reported staff spending an increased amount of time with patients due to better allocation of leave, greater transparency of rosters, challenging historic working practices, accurate recording of under/over-contracted hours and reviewing of break and shift times. Trust-wide benefits can now be seen in improved management of staff and services, greater understanding of staff availability, greater financial understanding, reduction of staffing costs within payroll and greater understanding of bank and agency use.

Keywords: eRostering/Staff rosters/Workforce planning

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5 key points
1. Higher mortality rates have been reported for patients with the highest patient: nurse ratios
2. Through eRostering, managers can better control the allocation of staff and hence improve patient outcomes
3. Departments that are open 24 hours gain the greatest benefits from eRostering
4. The ward prediction tool allows managers to work out individual ward availability
5. Benefits include improved management of staff, greater understanding of staff availability and reduction of staffing costs

eRostering has enabled time spent on direct patient care to be increased
Nursing availability
Before the eRostering system was introduced, availability within nursing budgets was not measured or monitored. Unavailability, also known as “headroom”, describes additional funding to cover the ward when regular staff are on holiday, study leave or management time, or when they are off sick. NUH allocates 21.5% of the total nursing staff budget to unavailability. Maternity/paternity leave is generally excluded from budgeted availability but forms a part of total availability.

UK trusts have traditionally set their own availability figures for nursing budgets. NUH’s actual unavailability during 2011-12 was 28.8%; comparisons with other trusts using the same eRostering software show similar results.

A number of wards/departments within NUH have more than 34% of their budget used by staff unavailability. Key factors contributing to low availability within wards are sickness and maternity/paternity leave. eRostering gives ward managers access to their own monthly availability figures via a shared area, so they can see at a glance anything affecting budget control and how much time is spent on direct patient care.

NUH ward availability predictor tool
In order to understand ward/specialty variances, NUH has developed a prediction tool to allow managers to work out individual ward availability. This is greatly affected by the number of part-time staff or staff with long service on a ward due to an increase in time spent off the ward for mandatory training or annual leave; staff availability has been noted to vary by up to 10% between individual wards.

Management dashboard
The web-based eRostering management dashboard flags up potential issues, giving managers the opportunity to resolve them before they arise. For example, high allocation of study leave would be noted, so ward managers are able to review whether the amount needed to be reduced. All ward managers and finance managers have access to the eRostering Management Dashboard, which ensures good managerial practice and transparency at all times.

Patient dependency tool
The trust started using the Association of UK University Hospitals (AUKUH) patient dependency tool in 2008. This nationally recognised tool for workforce planning is supported by both the Department of Health and the NHS Institute for Innovation and Improvement (AUKUH, 2009). Having now completed 12 data collection cycles on all adult inpatient areas, the tool has shown directorate teams that early detection of issues affecting the nursing workforce assists with early intervention.

When used with the nursing and midwifery dashboard, the tool offers a reliable method against which to deliver evidence-based workforce plans. Directorate teams are now able to compare funded establishment and actual budgets with predicted budgets and the impact on bank/agency spending.

Nursing and midwifery dashboard
Working with the McKinsey Hospital Institute, NUH developed a nursing and midwifery (N&M) dashboard with the aim of providing “at-a-glance” information about the quality of nursing and midwifery care delivered within the trust. Senior nurses collect the data for nursing and midwifery metrics every month using portable computers and wireless technology and this information is made available on the intranet for all NUH staff to view.

The trust began collecting data in March 2011 from a total of 72 adult, paediatric, neonatal and critical care areas. Metrics for maternity inpatient areas have been developed and will soon be included.

Linking to patient outcomes and benchmarking
The final stage in the development of the N&M dashboard is to link nursing unavailability information from eRostering with care metrics, patient outcomes, benchmarking and patient satisfaction. Ward managers can already see the amount of time spent in direct patient care, as well as two of the key factors affecting high unavailability – sickness and maternity/paternity leave. Linking this information with details of patient dependency and finance will enable ward managers and matrons to fully understand the link between the nursing workforce and delivery of care.

Meeting its targets
The introduction of eRostering has created positive changes:
» Unfilled shifts continue to decrease;
» Additional hours can only be used when authorised by matrons;
» Time spent on patient care continues to increase;
» Management time is decreasing;
» Staff working restrictions have reduced;
» Annual leave allocation is consistent;
» Over-contracted/unused hours have been reduced.

Also noted by the trust are overall improvements in nursing and midwifery metrics, specifically:
» Significant improvement in pressure ulcer prevention;
» Accurate completion of falls care plans improved from 54% to 67% and reassessment increased from less than 50% to 71%;
» Nutrition assessment and planning has increased from 63% to 75%.

The trust has made real efforts to understand what its nursing workforce is doing and has taken steps to reduce measurements that impaired nurses’ flexibility or took nurses away from delivering hands-on patient care. Only through the use of measurement tools is it able to continue to effectively produce measurements that ultimately support improved patient care and outcomes.

Are patient outcomes improved?
Introducing eRostering alone will not change patient outcomes. However, it can enable trusts to understand issues affecting nursing staff and identify how nursing care can be delivered. Dynamic rostering, using real-time information on staff/patient ratios, will help to ensure the right number of staff are available to meet fluctuations in demand on wards.

Through the use of nurses’ tools, nursing teams at NUH are now equipped to link key nursing measurements with patient outcomes. NT

References