Why poor nurse rostering frustrates Government initiatives to reduce spending on temporary staff and facilitate flexible working practices

Poor staff rosters are at the heart of socially unacceptable working patterns, inadequate rest times, and increased levels of stress. This equals poor productivity and low levels of engagement, consequently leading to high agency costs to combat high staff turnover and high levels of sickness. Rosters are still largely undertaken by hand, typically by a ward sister, who will do the task at home to get some peace and quiet. It’s a tiresome and thankless task, which, once done, is rarely altered as it’s too difficult. This causes frustration amongst the workforce, as they can’t get the flexibility of shifts that they want.

The production of rosters, while maintaining the correct level of staff coverage, is a highly complex task and is not amenable to solution by manual methods. It’s imperative not to break any employment laws or force staff to continually work undesirable shifts, such as a 7 nights in a row, or late shifts followed by an early the next day.

Today the NHS employs an army of 1.5 million people, of which nurses make up a third. The NHS website boasts, “...only the Chinese People’s Liberation Army, Wal-Mart and the Indian Railways directly employ more people”. As a result the total wages bill is in the region of an astronomical £67 billion a year, 75% of the annual budget. On a typical day temporary workers cover 10% of shifts.

This vast sum of money has become a persistent target of savings in various Government reviews. Not least, the National Audit Office which claims electronic rostering (e-rostering) will combat poor management information and a lack of understanding in the drivers for the demand for nurses, creating savings of between £25 million and £50 million.

Seizing the opportunity to improve the nursing population’s work-life balance, Professor Celia Glass, together with her colleague Dr Roger Knight, devised an e-rostering method which combines sophisticated mathematical programs with a deep knowledge of personnel rostering. The method is flexible and powerful, and is designed to allow for a range of considerations including legal\(^1\) and contractual requirements, ergonomic guidelines and individual requests. To date, the model has been applied to solve several benchmark rostering problems, selected for their difficulty. The strength of the approach, as measured by the HSE\(^2\), is highlighted in the recently published paper, “The nurse rostering problem: a critical appraisal of the problem structure”\(^3\).

The market for e-rostering in the NHS is a young one; there has been a slow up-take of existing e-rostering tools. Less than 50% of the 411 NHS Trusts have invested in e-rostering software to date, with almost all sales split between two companies. Research shows that existing products don’t have sophisticated algorithms at their heart, and significant frustration at user level exists. This is not surprising as researchers have been trying to solve the nurse rostering problem since the 1960’s.

\(^1\) The European Working Time Regulations
\(^2\) www.hse.gov.uk/research/rrpdf/rr446cal.xls
The un-tapped UK market is currently estimated at nearly £100 million per annum and is expected to grow, as to date this expenditure has only been on nurses. Trusts are beginning to signal that they are planning to extend the roll out to remaining hospital staff.

Professor Glass, emphasising the benefits of her and Dr Knight’s e-rostering method, says, “the potential savings from our method are very significant and include:

- Reduction in agency staff costs, directly due to increased accuracy of staff cover, and in the longer term from higher staff retention
- Release of senior nursing staff time – about two days per month is currently required for drawing up a ward staff-roster
- Improved quality of care will result from more ergonomically designed rosters, which can be expected to reduce employee tiredness and stress
- Improved staff retention rate is an expected longer term benefit of improving roster flexibility to support NHS family-friendly policies
- Improved employee engagement as nurses can exercise some control over the shifts they work by requesting their preferred shifts”

It is possible to quantify the benefits of this approach to rostering by identifying some performance indicators, and measuring by how much they improve. A case study was completed over an 8 week period in conjunction with the Accident and Emergency department at Horton Hospital, which resulted in a considerably improved roster. The main performance indicators and percentage improvements (i.e. reduction in number of days) achieved are as follows:

<table>
<thead>
<tr>
<th>Quality Measure</th>
<th>Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of 7 day stints</td>
<td>53%</td>
</tr>
<tr>
<td>Number of Isolated work days</td>
<td>100%</td>
</tr>
<tr>
<td>Number of singleton night shifts</td>
<td>100%</td>
</tr>
</tbody>
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It should be noted that the contact at Horton Hospital, Dr Bryan Todd, who produced the ‘before’ roster, is renowned as being able to produce exemplary rosters, making these results all the more notable.

Whilst it is true that implementing an e-rostering system offers considerable benefits, there are also challenges to a successful deployment. It is no small feat for a ward to move from a manual method of scheduling staff to an electronic one. Therefore, the success of an e-rostering product is, in part, down to being able to tackle the barriers to changing the manual working practices.

Multiple interviews with nursing directorate in a selection of NHS trusts highlighted the following barriers to adoption:

- Moving from a manual to electronic way of working is a significant change project as it requires a different mind set for end users.
- Nurses can feel like Big Brother is watching them.
• The ward sister can feel like their power is being taken away.
• The process of moving to the new system requires staff contracts to be assessed which often highlights differences that need aligning. This can cause ill feeling if perceived privileges are lost.
• Moving to an e-rostering platform without assessing whether the ward duties still match demand can mean any in-efficiencies of the manual method is simply transferred to the electronic method. Therefore not all the benefits of e-rostering will be realised.

All NHS Trusts can benefit from improving monthly rosters by moving to an electronic method, and consequently work towards reducing the wage bill, but it won’t happen over night. Trust management not only need to embrace the idea that a human brain can not possibly calculate how to best schedule employees, but also know that successfully moving an electronic platform means investing significant energy into a robust change program.

_Celia Glass - Professor of Operational Research at Cass Business School and has 30 years experience in Mathematical Optimisation techniques and applications.  
Roger Knight - Research Fellow at Cass, with PhD from Cass Business School, and 30 years experience of Call Centre Work-Force Management systems._

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