NHS SAFE STAFFING: NOT JUST A NUMBER

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FOREWORD

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This is an extremely timely document given that there have been fundamental changes within the NHS over the recent past. From 1997 until 2010 the size of the NHS budget almost doubled, from £55 billion to £104 billion (in current terms). Since then, while different commentaries will tell you different things, NHS expenditure has essentially flat-lined in real terms.

Of course the NHS is a labour intensive sector, with approximately 70% of expenditure devoted to labour costs. Over the period 1997 to 2010 there was an approximate 35% increase in NHS staffing levels; medical and dental staff rose over 60% and nursing staff over 20%. Since 2010 there has been, in line with the flat-lining of expenditure, little change in staffing levels. Pay also increased; over the same period the average annual pay increase was over 3%. For the 10-year period from 1997 consultants saw their pay rise 80%; while nurses saw a 20% rise in pay. None of these pay increases were directly related to productivity.

Indeed the argument that real NHS expenditure is increasing is reconciled with the flat lining of NHS spending, as the NHS is being asked to make 4% savings through productivity gains over each of the years 2010 to 2014 (and possibly beyond). To date this has just about been achieved. In fact this productivity growth has occurred as there has been a slowdown in input (mainly labour) growth, while output has been maintained. In other words, NHS productivity growth has been achieved through a flat-lining of NHS inputs, in particular labour input into the NHS over recent years. Productivity has not grown because output has grown; but because output has been maintained as input growth fell. Obviously this is not sustainable and, indeed, there are signs that for a number of individual NHS providers this is already problematic.

If the NHS is to rely on increasing productivity to maintain standards, then it is clear that better knowledge over the form, type and uses of the labour-force is required. If productivity growth is to be relied upon to improve the NHS this requires knowledge over what are the optimal skill mixes with which to provide treatments; what are the tasks best suited to differing types of labour within the NHS; and which rewards and incentives ought to be used to ensure that these skills are forthcoming. As this report documents there is little information relating to these questions.

If productivity is to be increased it is imperative to know how best to deploy labour within the NHS. Currently there is little information on the value added to individual treatments by different forms and mixes of labour provision. There is, in fact, little information over the actual hours worked by the labour

force, the impact of turnover rates on local labour markets or on the actual tasks undertaken by different types of labour on a day-to-day basis.

As this timely report implies too much NHS workforce planning is crude, based on historical ratios of the number of nurses per bed, or the patient-nurse ratio or the doctor-nurse ratio. It is upon these and similar calculations that arguments around staff shortages are made. Yet these are historical norms, affected as much by changes in delivery patterns and new health care technology as by planning targets. This report deserves to be read if only to raise awareness of the importance of staffing issues to the continued ability of the NHS to deliver health care at appropriate levels to the UK population.

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SUMMARY

The greatest running cost of the NHS is its workforce[1]. The authors show how this aspect of the NHS can too easily be neglected in the policy process, or discussed only in the context of concerns for costs of the NHS payroll. The NHS nationally and locally relies heavily upon weak data relating to the deployment of its workforce. This can be to the detriment of what should be a key policy concern: the effectiveness of the NHS's most significant asset.

Even the smallest failures in staffing levels or payroll accuracy have a significant impact on clinical effectiveness and the costs of the NHS, given the overall size of the workforce. The debate about staff-patient ratios is somewhat academic in the absence of a robust system for planning, monitoring, and recording staff numbers. In achieving the ambition of high-quality patient care minutes count and systems that cannot provide such accuracy undermine this ambition. Unannounced inspections of NHS hospitals have revealed discrepancies between staff rosters and ward reality. Safe staffing is more than just a number on a roster.

The current pursuit of a "paperless NHS" from the Health Secretary's Digital Challenge seems to largely ignore the importance of real-time information on the deployment of hospital nurses, in favour of the much more challenging ambition of achieving the complete roll-out of electronic patient records. Staff records and patient records are two sides of the same coin. The Francis Report and its aftermath has served to highlight the clinical value of real-time workforce data. Whilst fears of "clocking-in" systems persist, reliable biometric technologies are becoming more ubiquitous where safety or security matters, and their potential value in the complex environment of the NHS is becoming evident where they have been adopted. The Government's response to the Francis Report included a demand for robust ward-level data on staffing and the Berwick Report on safety argued that NICE should be commissioned to investigate the lack of real-time workforce monitoring. These are ambitions that could be readily achieved with no additional bureaucracy if the NHS had a leadership that was more willing to embrace digital workforce management solutions.

In this paper we first establish the background behind this oversight in NHS management. We try to identify some of the potential clinical and financial benefits from more robust workforce data, and the barriers that limit progress towards the adoption of digital technology for the closely linked tasks of rostering, payment, and quality assurance. Issues of leadership lie at the heart of NHS reluctance to address some of its cumbersome, costly and dangerous workforce systems.

Our analysis suggests that aside from the gains in safety that robust, automated timekeeping systems offer to the NHS there are also significant potential financial gains; in a very conservative estimate £30.5 million may be lost annually in salary overpayments when manual input presents a weak link

between staff on the wards and hospital payroll departments. This is money that could be used to reduce reliance on unpaid overtime, which can affect staff motivation and retainment, or to improve total staffing levels. A further £41 million potential efficiency gain may be possible through automation of timekeeping, and the elimination of general errors and corrections in payroll systems. This **£71.5 million** may be additional to the gains from the roll-out of e-Rostering systems, which is now underway in the NHS.

Success in addressing these issues requires a concerted and cohesive approach, with strong leadership and broad support. A shift towards an evidence-based system for staffing requires not only a focus on the assurance of high quality care, but also a common understanding that a more efficient system will be equitable between members of the workforce.

At present the NHS appears to lack the local and national leadership that it needs in order to take simple but important steps towards a robust and effective system for safe staffing.

INTRODUCTION

The discussions that provided the genesis of this paper coincided with a report from the House of Commons Health Select Committee which argued for the routine display of each hospital ward's ratio of clinical staff to patients[2]. Upon investigation it became clear that most NHS hospitals would struggle to provide robust, real-time data of this nature. The absence of reliable systems to record workforce timekeeping represents a potentially serious flaw in the system, affecting both its safety and efficiency. It seems that the NHS had fallen behind the times in comparison to many other employers, particularly those in which the presence of qualified staff plays a vital role in the delivery of safe and effective services[3]. Whilst many NHS hospital trusts have moved towards electronic systems to improve the workload, accuracy and equity of rostering systems, at least for nurses, far fewer have combined this with any form of automated system to monitor and record workforce adherence to the roster. This lack of connection between planning and delivery has potentially serious clinical and financial implications for the NHS.

Within the challenging environment in which the NHS now operates, when improvements in safety and quality must be made alongside ongoing efficiencies, this paper serves to highlight an aspect of workforce management that should not be ignored. This is emphasised by unprecedented campaigns from within the clinical professions themselves to raise standards of care and transform the workforce culture of the NHS. The *"Speak out Safely"* campaign from the Nursing Times, for example, demands the development of cultures that are *"open and transparent"* with regard to safety[4], enabling staff to speak out whenever a safety concern occurs. The Royal College of Nursing (RCN) issued guidance describing good quality data as the *"cornerstone of effective staff planning and review"*[5]. It has argued that: *"Ensuring robust data collection, management and interpretation processes are in place is essential for effective workforce planning and reviews"*[6] The workforce is understandably suspicious of systems that are reminiscent of industrial-style "clocking-in", particularly when modern systems use biometrics to overcome the fraud and safety risks associated with card-based systems[7]. This suspicion is by no means unique to the NHS, although biometric-based security systems are becoming commonplace, whether in public transport, at work, or in personal mobile devices[8]. Indeed, because of their reliability and security such systems are being adopted within the hospitality sector not just for the workforce but also customers[9].

In this discussion paper we have attempted to first outline the policy environment affecting NHS workforce management, and briefly investigate apparent weaknesses and opportunities that might remain in the implementation of safe staffing policies in NHS hospitals following the roll-out of electronic rostering systems. Our research has been mostly limited to available literature, assisted by a small number of telephone interviews, and a visit facilitated by Kronos UK to Basildon and Thurrock NHS Foundation Trust in order to see an e-Rostering system in use.

HOSPITAL NURSING WORKFORCE: THE BIGGEST ASSET OF THE NHS

In this short paper we have focused our discussion on the nursing workforce. This is done simply because this is the largest element of the NHS workforce, and because nurses have led in the adoption of electronic rostering systems. We have no reason to believe that the issues and potential solutions are any different for other NHS staff groups providing care and treatment to patients. Excluding GP practice nurses the NHS in England employs 370,000 qualified nurses, midwives and health visitors and 214,000 consultants, doctors and other clinical staff[10]. Healthcare is labour-intensive, so that the workforce accounts for two-thirds of total costs[11].

In 2005-6 earlier changes in manpower plans and in contracts produced dramatic increases in NHS workforce costs, so that pay alone accounted for almost half of the 10% real-terms increase in NHS spending in what has been described as this last of the *"boom"* years[12] for the NHS workforce. Since 2005 workforce productivity has become an increasingly central concern, but the paucity of robust data means the NHS is ill-equipped to manage the workforce or measure its productivity. In evidence to the Health Select Committee the workforce expert George Blair commented that: *"the information side is not well resourced … Giving you a metaphor, in the Battle of Britain radar was crucial so that scarce resources were most effectively deployed. There was no clamouring for scrapping the radar and having more pilots".*[13]

In the absence of any system to monitor workforce needs, the size of the workforce can be driven more by financial considerations than by clinical need. During 2013 data began to demonstrate that many NHS providers had responded to demands for efficiency, at least in part, by a straightforward reduction in nurse numbers.[14] This has only exacerbated concerns about the capacity of nurses to deliver effective and safe care. Poor ward staffing levels against rising patient dependency, and the administrative demands placed on nurses have rekindled fears of a *"compassion squeeze"*[15].

At the time of writing, and in response to concerns over safe staffing levels, the general trend seems to have shifted back towards recruitment, with a reported increase of 3,700 more nurses expected in 2013-14.[16]

THE NICHOLSON CHALLENGE

In 2009 the NHS Chief Executive, David Nicholson, warned the NHS that it should assume that: *"we will need to release unprecedented levels of efficiency savings between 2011 and 2014 – between £15 billion and £20 billion across the service over the three years."*[17]. As (the first phase) of this challenge draws towards its conclusion NHS Trusts' confidence in achieving the required efficiency savings appears to be in decline. In the year to September 2013 the proportion of NHS trust finance directors

who were either fairly or very concerned about achieving their one-year targets for the Cost Improvement Programme (CIP) rose from 11% to 43%. Just one-third expressed confidence.[18] But there is no sign that the NHS will be able to assume a more benevolent financial environment in the years that follow. David Nicholson himself has predicted: *"Our analysis shows that if we continue with the current model of care and expected funding levels, we could have a funding gap of £30bn between 2013/14 and 2020/21,which will continue to grow and grow quickly if action isn't taken. This is on top of the £20bn of efficiency savings already being met. This gap cannot be solved from the public purse but by freeing up NHS services and staff from old style practices and buildings"*[19]

Furthermore, the £3.8bn Integration & Transformation Fund is taking a minimum of an additional £2bn of resources away from the acute sector from April 2015[20] for use in out-of-hospital services: In the longer term it is intended that this Fund will lead to a long-term reduction in demand on the acute sector.

The changes required following the Francis Report, include demands for high standards of care 24/7. The shift towards seven-day working was promoted by NHS England in late 2012[21], and evidence from best practice plus a high-profile campaign led by the Sunday Times during 2013 strengthened backing for seven-day working within the medical establishment[22].

In its Mandate to NHS England for 2014-15 the Government differentiates between "treatment" and "care", and sets its ambition as *"transformational change that brings about reliably safe and high quality care"*[23] NHS providers can expect no less determination to meet the Nicholson Challenge under the next Chief Executive of NHS England. When the Lansley reforms were announced in 2010 Simon Stevens supported the changes asserting that efficiency and quality are inter-related. He argued that: *"In the US data show that the highest quality and most efficient doctors and hospitals often cost at least 20 per cent less than the rest.*[24]

THE DIGITAL CHALLENGE

The NHS has a fraught and costly track record of centrally-driven IT projects stretching back to the 1980s[25]. The most recent programme, an eight-year national strategy launched in 2002[26], had reached a cost of £7.2 billion a decade later, with much of its original vision unfulfilled, its original ambitions much reduced, and *"very considerable uncertainty"* around the forecast benefits[27].

In January 2013 this unfortunate record did not deter the new Health Secretary, Jeremy Hunt, from declaring: "today I am setting a new ambition for the NHS. *"I want it to become paperless by 2018. The most modern digital health service in the world"* [28]. His enthusiasm was supported by the simultaneous publication of a report suggesting that the NHS could reap £4.4 billion of annual benefits from the use of IT in patient care[29]. In 2012-13 the Government also announced the creation of two funds to bring digital technology to hospital wards, amounting to £600 million in total[30].

What is most notable about this high profile activity is the complete focus on clinical data, and the lack of attention to workforce-related data despite its much larger role within the operation of the NHS. The nearest that the NHS came to central pressure for the adoption of electronic systems in the complex task of hospital workforce management was a 2006 National Audit Office (NAO) report promoting good practice in the use of temporary staff[31]. The report offers examples from the NHS and private hospitals where electronic systems were used to improve the deployment of permanent staff and to provide real-time management information[32]. In 2007 NHS Employers produced a guide to e-Rostering, although this was clear that it still relied upon staff to manually enter a record of their actual worked hours[33].

A 2012 survey by NHS Employers found that 90% of NHS Trusts had implemented an e-Rostering system, and that most of the remainder were resolved to do so[34]. However, this was only for certain staff groups; whilst 97.7% of systems in place covered qualified nurses, just 16.9% included medical and dental staff. Pressure to implement e-rostering for medical trainees is provided by the costs of failures to comply with the requirements of the European Working Time Directive (EWTD) and Health and Safety requirements: When hospitals breach these rules they must not only pay substantial salary supplements, but are also fined for each breach. Against this background, the failure to achieve the more widespread roll-out of e-rostering systems for medical staff should be a cause for considerable concern on financial grounds alone.

The apparent general lack of attention to staffing processes is a significant issue for the NHS. Francis, in his report on Mid-Staffordshire NHS Foundation Trust claimed that the Strategic Health Authority had missed opportunities to intervene, hypothesising that: *"The failure to link staffing issues with patient safety may explain the lack of interest or urgency in looking at these issues when they were raised about the Trust".* Government initiatives such as the Nursing Technology Fund suggest that political interest in staffing is still concentrated on the staff-patient interface, rather than the workforce processes that make this interface possible.

The Government's "Digital Challenge" for clinical records faces the same cultural barriers that are preventing the use of new technologies in linking staffing with patient safety. In a December 2013 survey of 419 health and health IT professionals within the NHS the Health Service Journal found that ambitions for the use of technology are *"stymied by a lack of leadership and skills".*[35] Commenting on problems in the roll-out of an e-Rostering system one NHS Trust workforce performance manager said: *"Making sure you've got the senior managers bought into it is massive, and when we rolled it out in Portsmouth we didn't really have that support, so that was a big problem for us".*[36]

Health systems too often consider themselves unique in the challenges they face. This is rarely true. Air transport, for example, is bound by a complex web of regulation alongside often tenuous finances which have challenged operational researchers for many years[37]. Crew resource management (CRM) that uses non-technical skills to reduce human error has long-been the norm in aviation, and has spread to some aspects of medicine. The focus on issues of leadership and openness in teams may have much wider relevance where safety matters[38]

In the Francis Report the author highlights the need for leadership in first establishing effective working, and then assessing whether the number of staff available is sufficient: *"Leadership is about producing effective work from the work force that you have. But if you assume that your nurses are working effectively and you still do not have enough staff to go round, then that is where you have the problem. I am afraid all these things are difficult and I am not going to pretend they are not, but it is a combination of having enough staff and the right leadership. One without the other is not sufficient*"[39].

SAFE STAFFING: IS THERE A RIGHT RATIO?

Compassion in Practice, the Government's nursing strategy, published in December 2012 said that: *"we need the right number of staff, with the right skills and behavior and working in the right place to meet the needs of the people they care for", but* rejected sole reliance on Nurses Per Occupied Bed (NPOB) as *"not sufficiently sensitive to reflect the skills mix at the point of care delivery"*[40]. The strategy indicated that Trust Boards should receive, endorse and publish information on staff levels at least twice a year More recently the Government has responded to Francis saying that ward-level data on nurse numbers should be published monthly[41] and that *"All trusts should put in place measures to increase transparency on staffing at ward and service level as quickly as possible"*[42]. No justification is given as to why 12 times a year is better than twice a year, or indeed 365 times a year[44]. Furthermore, no assessment is made of the potential validity of the data that would be produced. The Berwick Report on safety also recommended that transparency of safety and quality data should be *"complete, timely and unequivocal"*.[45]

Una O'Brien CB, Permanent Secretary at the Department of Health, told the Health Select Committee that: *"the development of data reporting would be essential to monitoring progress …We need to make sure that the tools are fit for purpose. There needs to be more work on the quality of evidence behind the tools. The second stage is to ensure that they are systematically adopted and, thirdly, that there is adjustment and management on a daily basis*[46]*.*

The Berwick Report recommended that NICE should be tasked with investigating the evidence on staff-patient ratios, and advise on this and on methods for "real-time" monitoring. In the meantime, however, it warned that the NHS must pay heed to recent research on the topic suggesting that: *"operating a general medical-surgical hospital ward with fewer than one registered nurse per eight patients, plus the nurse in charge, may increase safety risks substantially"*[47]*.* In its recommendations on measurement and transparency the Berwick Report described timely data on staffing levels as a potential *"smoke detector"*, providing an earlier indicator of problems than mortality rates[48] but also advised that quantitative targets should only be used "with caution"[49].

Similarly, the Government in its response to the Francis Report said that: *"accurate, useful and timely information allows providers of services, their commissioners, regulators and others to identify early warnings to the quality of services and take immediate action to review and address them".*[50] To coincide with the Government's response the NHS Chief Nursing Officer, Jane Cummings, produced

guidance on staffing capacity and capability. In it Cummings emphasised the need for routine monitoring of staffing levels on a shift-to-shift basis, so that *"immediate implications"* can be managed[51]. The guidance called for daily reviews at ward level and detailed monthly reports to NHS Trust boards, showing not only planned staffing levels, but also the number of actual staff on duty and the reasons for any gaps[52]. The guidance, however, warned that ratios alone do not produce good patient care. Whilst aids such as the Safer Nursing Care Tool[53] can be used to help determine staffing requirements, it argues that high quality care *"depends upon a range of other factors, such as the leadership of an organisation, the management culture, the culture and team working on the ward, the level of education and training available to staff, and the organisational environment"*.[54]

FROM ROSTER TO REALITY

As has been noted above, the accuracy of workforce data is vital to the provision and planning of high quality care. Appropriate levels of staffing within a roster are a necessary condition for safe care, but it is not sufficient to ensure the presence of an effective workforce for the care and treatment of patients. A roster is, in effect, a forecast of ward staffing, whereas many factors can affect delivery of the roster on a ward-by-ward, minute-by-minute basis. Even very short periods of time when a roster is not met, or not sufficient, can have a serious impact on care. Variations between rosters and actual staffing levels can, of course, occur for many reasons, and are sometimes unavoidable:

- Staff can be called away to other wards or activities in response to unexpected demands
- Sickness absence is a significant factor given the demanding nature of clinical work. Nursing, midwifery and health visiting staff in the NHS take an average of more than 10 days per annum of sickness absence[55].
- Small flexibilities between the demands of work and home can prove necessary in many forms of shift work in response to the unsociable hours involved.

If, however, these variations from the roster are not tracked and acted upon immediately it can leave wards short-staffed and payrolls in confusion. Whilst some members of staff are overworking their hours, others are underworking[56]. The payroll situation is made worse if the relevant shifts attract "enhanced hours" payments, so that hospitals may continue to pay these for permanent staff who have not been able to complete their rostered hours, and turn to agency staff for their most expensive night and weekend shifts. Exact timing matters greatly; staff levels at certain points, for example at shift handovers, can be of significant clinical importance.

In his review of 14 hospitals with high mortality rates, in which the review team would sometimes unannounced night-time or weekend visits to hospitals Keogh noted that:

"Contrary to the pre-visit data when the review teams visited the hospitals they found frequent examples of inadequate numbers of nursing staff in some ward areas. The reported data did not provide a true picture of the numbers of staff actually working on the wards. In some instances there were insufficient nursing establishments, whilst in others there were differences between the funded nursing establishments and the actual numbers of registered nurses and support staff available to provide care on a shift by shift basis."[57]

In 2013 the Chief Nurse at UCLH told the Trust board:

"Real time data would support operational decision making in relation to safe staffing levels. This would require daily acuity and dependency audits and an electronic patient record to extract care process measures from it. It would also need full implementation of e-roster to extract real time staff levels data … Ultimately the vision is to provide patients and their carers with real time quality assurance data that will be available at the entrances of wards and departments. The availability of such data will increasingly become important to the public and will be an additional significant factor in their confidence in the organization."[58]

Systems that require a degree of manual data input on actual staffing levels introduce inevitable risks into the system, whether due to time pressures, human error, or data manipulation. Such manipulation came to light, for example, within the context of waiting times data at Colchester General Hospital, where the Care Quality Commission discovered that data on care pathways had been altered in order to comply with cancer waiting time standards[59].

MOTIVATION AND MANAGEMENT

Robust data on the adequacy of staffing levels requires not only an effective system of rostering, but also an effective system for monitoring adherence to the roster. The risk, of course, is that any steps in this direction can easily be perceived as controlling, and therefore demotivating. The goals of new systems need to be understood and become intrinsic to staff, so that autonomy is enhanced rather than reduced[60]. There is a considerable risk that if the purpose is perceived as being to produce pointless data for pointless targets, or simply to exert control or cut costs then the prospects for motivation would be low.

A system within which staffing data is routinely monitored and shared must be closely tied to visions for high quality patient care. It must enhance perceptions of nurses' own control over their work rather than further diminish it. Inadequate and unpredictable staffing levels are known to adversely affect perceived control amongst nursing staff;[61] better systems for rostering and monitoring staffing levels can present an opportunity to address these factors. Note on different public-private attitudes to time recording.

Leadership is a critical factor to success, at all levels from Whitehall to the ward. Transformational leadership, in which visions, values and goals are shared, is known to affect wider motivation[62]. A

survey of NHS employees by the Kings Fund found that staff themselves rated leadership as the second most significant factor, after resources, in creating the right culture for high quality care.[63] Yet, as discussed earlier in the context of e-Rostering and the Digital Challenge the NHS suffers from a widespread lack of engagement by senior management in the adoption of IT solutions, even where the benefits in terms of efficiency and safety are well established.

HOW MUCH CAN IMPROVED MANAGEMENT SYSTEMS CONTRIBUTE?

In the course of writing this paper we have had the benefit of access to information from several providers that have moved to paperless systems for their nursing workforce. It is unsurprising that in paper-based systems mistakes are made given the complex and ever-changing nature of ward staffing 24 hours a day. The scale of these mistakes will usually only become apparent once a more robust system is adopted.

Problems with over- and under-payment of staff appear to be widespread in the NHS. The 2011 Staff Survey suggested, for example, that 55% of non-medical staff regularly worked unpaid hours, and it has been claimed that 41% of staff regularly work up to five unpaid hours a week[64]. At the same time administrative errors lead to hospitals continuing to pay staff after they have left. Several such instances have come to light, suggesting an extensive problem.

A BBC Radio Kent investigation using Freedom of Information requests to NHS trusts in the county found £3 million of overpayments over five years. One of the highest found in the county was at Maidstone & Tunbridge Wells NHS Trust, although £300,000 out of £442,000 overpaid in 2010/11 had been recovered by April 2013. Noel Plummeridge, a former NHS Finance Director for the region told the BBC that: *"It's worth noting that it's not a Kent specific problem; this is something that's been noted across the NHS. It's not a new problem. It's been going on for some years"*.[65]

The Health Service Journal found that Barts and The London NHS Trust had to employ debt collectors to chase around £1 million of overpayments in 2011-2012, having made a similar level of overpayments in 2010-2011. An audit report found that one doctor, who had left the Trust, had been overpaid £126,000[66] An October 2012 report to the Trust Management Board said that: "*Barts Health over pays staff circa £1m per year – much of which is lost*". The report identified leavers as the main source of overpayments, with other significant sources included hours reductions and spells of unpaid leave. Another indicator of the widespread nature of the problem is that whilst the original disclosures related to Barts & The London NHS Trust, prior to the April 2012 merger of several Trusts to create Barts Health NHS Trust[67], the October 2012 report discovered that it was; *"common across the merged organisation and the problem is not just within the BLT legacy site"*. [68]

As an example of the type of difficulty that can arise in any major hospital with paper-based systems the experience of the highly-regarded UCL Hospitals NHS Foundation Trust may be instructive[69]. At its

meeting in May 2013 the Trust's Audit Committee was concerned at the discovery of: *"67 occurrences of staff overpayments amounting to £177k in the 6 months to October 2012 and expressed surprise that removal of leavers from the payroll on a timely basis was proving to be a challenge."* Apparently "leaver forms" were slow to find their way from Divisional Managers, to Human Resources, to Payroll. Other issues raised included unverifiable signatures on overtime forms. According to the minutes such problems would be addressed by the rollout of e-rostering.[70] At its July meeting the Audit Committee was told with regard to payroll reconciliation that: *"Good information in this area was proving a challenge for most NHS organisations"* and that at UCLH *"There was no indication of fictitious employees on the payroll, but there was uncertainty around establishment/budgeting"*.[71]

The suggestion that these uncertainties are widespread was confirmed in an interview with a retired Finance Director from a hospital trust, who commented that revelations of substantial failures in the timesheets system at the trust were not unique: *"Every other organization would be exactly the same".*

These figures are, of course, based only on the element of overspend that has come into the public domain. They are very small when compared to overall workforce spending**.** This serves to highlight the significant benefits of steps to ensure complete accuracy within the NHS payroll which dominates health spending. An overspend as low as £354,000pa, as discovered at UCLH, although just 0.09% of the total payroll at the Trust, would be sufficient to pay the salaries of an additional 11 qualified nurses[72]. Even this very low level of overspend due to time recording failures would amount to £63m if replicated across the NHS in England.

Based on the fact that £140,000 of overpayments at Maidstone and Tunbridge Wells was unrecovered two years later, and the level of overpayments revealed at UCLH (above) if the problem is as widespread as suggested then as much as £30.5 million may be lost annually across the NHS in England[73]. That this should be happening at the same time that many in the workforce are undertaking unpaid hours is particularly worrying. The impact on morale of such practices could be very serious. The question of overpayments is certainly worthy of much greater attention and analysis across the NHS.

PAPERLESS ROSTERING AND DELIVERY: AN ESTIMATE OF FINANCIAL GAINS

As yet the NHS has little experience of moving beyond electronic rosters to a paperless system that links the roster, service delivery, and the payroll. Our estimate of potential gains is, therefore an extrapolation from the case studies for which data is available in the public domain. This is, by necessity, a best guess at the size of potential financial gains. We believe that other potential gains, in patient safety, and in the retention of experienced staff are probably more significant in the long run. It is almost impossible to separate the gains attributable to e-rostering and those that are due to implementation of a completely electronic system that records working time.

Our strongest evidence base is contained in a 2011 "benefits realisation" paper from Basildon and Thurrock University Hospitals NHS Foundation Trust[74]. The Trust decided to implement an e-Rostering system in 2008, beginning with the nursing workforce. The Trust estimates that its Payroll department is benefitting from recurrent annual savings of £100,000 through reduced input time, errors and corrections. The more efficient use of permanent staff, has brought about a reduction in the use of temporary staff that was saving £670,000 per month, which included a 37% (£5.8 million) reduction in total temporary nursing spend between 2009/10 and 2010/11 (the Trust switched to full e-rostering and time and attendance functionality in April 2010)[75]. As a *"very conservative estimate"* the Trust attributes £160,000 of annual savings directly to its time and attendance system rather than to the wider e-Rostering initiative.

On the basis of the savings claimed at Basildon & Thurrock, this would suggest that across England the potential gains to the NHS in a transition from basic e-Rostering to a fully electronic rostering and timekeeping system could be up to £41 million annually[76]. The robust data provided by such a system would also allow the use of resources to be carefully managed within a proactive system of activity analysis and workforce planning, rather than with a reactive system for managing shortages.

CONCLUSIONS

With a need to deliver much improved standards of patient safety, transformational change, and unprecedented and ongoing efficiency gains NHS hospitals will see few solutions that can simultaneously address all of these challenges. In this paper we have, however, highlighted a relaxed management approach to simple NHS workforce activity that puts safety and efficiency at serious risk. Furthermore, data weaknesses on actual working hours make a robust understanding of the pressures on the workforce, as a basis for change extremely difficult. In a safety-critical environment, where the absence of one member of staff for a matter of minutes can make a significant difference, knowing who is available in real time, and having a verifiable record of staffing levels is of great value. The paucity of such data affects the NHS at all levels, from the wards to Whitehall. Each year, for example, the pay review bodies must judge anecdotal evidence and best estimates when making fundamental decisions that have a significant impact on the operating costs of the NHS, the pressure felt by NHS staff, and eventually on patient care.

Introducing "clocking in" systems is fraught with difficulty, particularly where the extra security associated with modern biometric systems might be desirable. Achieving user acceptance is vital[77]. Our discussions with those who have introduced such systems highlight similar factors to those seen in other sectors: A clear objective is paramount amongst these. The development of e-Rostering is already demonstrating how technology can not only significantly reduce the administrative workload, to enable staff to concentrate on patient care, but also how fairness in rostering is more easily achieved and monitored within an electronic system. Against a background of many staff being underpaid for the

hours they work, and others (including leavers) being overpaid, an extension of e-Rostering into automatic time recording represents a logical next step.

The size and significance of the staff payroll within NHS spending necessitates an approach that aims to achieve complete accuracy, so that real staffing levels are always accurate, safe, and openly monitored, but with the minimum of bureaucracy. As we have seen even an inaccuracy 0.09% in the NHS payroll equates to around £63m annually across the NHS; sufficient for the employment of up to 2000 additional nurses.

NHS managers, however, must follow national priorities. When the "digital challenge" is restricted by politicians to patient data it is unsurprising that hospitals have been slow to seize the opportunities in taking e-Rostering to its logical conclusion. The current focus on safe staffing, however, presents a very real opportunity to move forward. Unannounced inspections by the Care Quality Commission should not be the only way in which real staffing levels come to light. Leadership at all levels is required if a more transparent and robust system for safe staffing is to be adopted.[78] Knowing that the right people are in the right place at the right time would be an important step towards a much safer heath system, alongside the many other changes that are required.

The Government is demanding real-time data on ward staffing, and with a little leadership at all levels this seems to be readily achievable, whilst also reducing paperwork and releasing nurses back to patient care.

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[1] As a rule of thumb, staff costs in the NHS are usually assumed to account for around two-thirds of operating costs. Our analysis of NHS hospital annual accounts suggests that workforce costs in this sector can vary between 50 and 60 percent of total operating costs, although some costs will be lost in other headings, for example, in services bought in from other providers.

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[69] UCLH was selected for analysis of recent Board papers simply because it is a particularly open hospital trust, which makes detailed board papers readily available to the public. We had no reason to believe that any reference to overpayments would be found.

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