

## EAST KENT HOSPITALS UNIVERSITY NHS FOUNDATION TRUST

REPORT TO: **BOARD OF DIRECTORS – 24 May 2013**

SUBJECT: **WARD ESTABLISHMENT REVIEW 2012/13**

REPORT FROM: **CHIEF NURSE AND DIRECTOR OF QUALITY & OPERATIONS**

PURPOSE: **TO INFORM THE TRUST BOARD OF THE OUTCOME OF THE 2012/13 WARD ESTABLISHMENT REVIEW**

### CONTEXT / REVIEW HISTORY

Regular annual ward staffing reviews are undertaken to ensure that the nursing establishments provide an appropriate staffing level and skill-mix to support the delivery of safe and effective care to patients. The Care Quality Commission recommends that staffing levels are reviewed every 2 to 3 years.

### SUMMARY:

This report outlines the 2012/13 review of 46 adult wards, 2 Paediatric wards, Critical Care Units and the Neonatal Intensive Care Unit.. The outcomes of the 2012 establishment reviews of Emergency Departments and Operating Theatres are also included.

### IMPACT ON TRUST'S STRATEGIC OBJECTIVES:

1. Deliver excellence in the quality of care and experience of every person, every time they access our services
2. Ensure comprehensive communication and engagement with our workforce, patients, carers, members GPs and the public in the planning and delivery of healthcare
3. Place the Trust at the leading edge of healthcare in the UK, shaping its future and reputation by promoting a culture of innovation, undertaking novel improvement projects, and rapidly implementing best practice from across the world
4. Identify and exploit opportunities to optimise and, where appropriate, extend the scope and range of service provision
5. Deliver efficiency in service provision that generates funding to sustain future investment in the Trust

### FINANCIAL IMPLICATIONS:

Adequate staffing levels impact on the achievement of the of the required performance indicators, non-compliance with contractual obligations attract financial penalties. This includes 2013/14 CQUINs which are valued at 2.5% of actual outturn, or around £10m.

### LEGAL IMPLICATIONS:

The Trust is required to meet CQC and NHSLA standards and is held to account for delivering harm free care, which has a direct effect on patient safety and experience. Inadequate staffing would present risks to the provision of safe and effective safe and would increase the likelihood of legal claims.

### PROFESSIONAL ADVICE TAKEN ON ANY NOVEL OR CONTENTIOUS ISSUES

Royal College of Nursing (RCN) and other professional guidance is incorporated within the review.

### BOARD ACTION REQUIRED:

To consider the recommendations and either support, reject or modify

### CONSEQUENCES OF NOT TAKING ACTION:

Insufficient numbers of staff, inappropriate skill mix and ineffective use of the existing workforce will impact upon the ability of the organisation to achieve the CQC and NHSLA standards and the quality outcomes within the operating framework and CQUINS for 2013/14.

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# EAST KENT HOSPITALS UNIVERSITY NHS FOUNDATION TRUST

BOARD OF DIRECTORS - 24 May 2013

## WARD ESTABLISHMENT REVIEW 2012/13

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# EAST KENT HOSPITALS UNIVERSITY NHS FOUNDATION TRUST

BOARD OF DIRECTORS - 24 May 2013

WARD ESTABLISHMENT REVIEW 2012/13

## EXECUTIVE SUMMARY

### 1. INTRODUCTION

Nursing staff are the primary deliverers of 24/7 health-care within the multi-disciplinary team in the majority of clinical settings and clinical specialities. There are currently no nationally agreed standards or guidelines for the number of nurses required to deliver care safely, to meet fundamental care needs, prevent complications, avoid unnecessary deaths and to deliver care to a recognised level of quality (except in a few specialist areas such as intensive care). In December 2010 the Royal College of Nursing (RCN) produced two key publications; a paper titled 'Guidance on safe nurse staffing levels in the UK (RCN, 2010)'; and an RCN policy position titled 'Evidence-based nurse staffing levels'(RCN, 2010). These publications do not set targets for Nurse staffing per bed but they do set out the essential elements for planning and reviewing nurse staffing.

The evaluation of ward staffing establishments used a number of tools and methods to assess the current staffing levels and skill-mix taking into account work-load indicators: acuity & complexity of nursing care, occupied bed-days, rate of throughput of patients to reflect length of stay in hospital. The review takes into consideration the efficiency and effectiveness of current rostering practices to aim to optimise the availability of current nursing staffing. It also draws observations from the quality of care provided during 2012/13 using the quality measures of harm-free care included in the NHS Safety Thermometer tool.

An essential component of the review involved a structured meeting between each ward manager and the Chief Nurse & Director of Quality & Operations, Acting Deputy Chief Nurse and Matron which enabled a discussion of professional judgements on staffing requirements, deployment of the staffing resource, factors impacting on staffing and the impact on quality including patient feedback, safety and effective care indicators within the ward quality dashboards. Valuable feedback was gained which has contributed to the review.

This report outlines the 2012/13 review which has evaluated nurse staffing establishments for:

- 46 adult wards (including medicine, CDU, coronary care, stroke, healthcare of the older person/frailty wards, general surgery, trauma & orthopaedics, critical care units, haematology/oncology, & gynaecology)
- 2 paediatric wards
- Neonatal Intensive Care Unit
- Outcomes of 2012 establishment reviews of Emergency Departments (A&E) and Operating Departments – theatres & recovery

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## 2. FINDINGS AND CONCLUSIONS

### 2.1 General Findings and Conclusions

The overall high level assessment is that generally the current staffing levels are satisfactory when the hospitals are running efficiently and bed capacity is matched to demand (admission & discharge profiles). In the adult wards where bed occupancy has been much higher than the recommended 85% and where there are unplanned additional or extra beds (un-funded) or the clinical demand for specialist care is above current forecasts, then current staffing levels are not sufficient. The main wards affected are medical & health-care of older people/frailty wards, and the stroke units. This is further compounded by the impact of maternity leave within ward teams which is not currently factored into the ward-establishments, and the relatively poor fill-rate by NHS-Professionals for temporary staff (60%).

The paediatric wards have expanded the type of activity carried out within the ward area, including high dependency, outpatient, and ambulatory care (in this case, bed occupancy is not an effective indicator or predictor of nursing work-load). Current staffing levels are not sufficient to meet current demand and will require investment.

The skill-mix (ratio of Registered Nurses to health-care assistants) has generally remained stable with the exception of general surgery and trauma & orthopaedic wards which has reduced partially in response to the development of the associate practitioner role at band 4 which provides a highly trained support role (foundation degree) capable of carrying out assessment and provision of technical care needs under the supervision of a Registered Nurse

The acuity (severity and complexity of clinical need) of patients requires a richer nursing skill-mix over the 24/7 period. The RCN have recently published a position statement (RCN, 2012) which outlines the need to ensure that the ratio of Registered Nurses per adult patient on each shift should not exceed 9 for adult wards, and 7 for elderly frailty wards. There are a number of wards where we should plan to increase skill-mix, and adjust the guidelines for rostering to ensure that there is a better balance of more experienced nurses (band 6) working at night and weekends.

Effective clinical leadership and management of the ward team is essential for building a well motivated team and a work-place culture that strives to provide consistently high quality care (person-centred, safe and effective care). A large component of this is effective communication and co-ordination of care. The current ward establishments allow for 0.4wte of the ward managers' time to be supervisory. The recommendation that the ward manager should be 100% supervisory (Francis report, 2013) has been considered as part of the review.

The review undertaken in 2012/13 of nursing establishments for the Emergency departments at QEOM and WHH is acknowledged as a high quality review and the subsequent investment and recruitment of additional staff noted. The review did not include ECC at KCH and a similar approach to the review is underway and will be completed in Quarter one of 2013/14

The review carried out in 2012/13 of the staffing establishments within the Operating departments (theatres and recovery) will need to be repeated in 2013/14 as the methodology applied was not as effective as planned. Early indications suggest that staffing levels will need to be adjusted to meet current demand.

The review carried out in 2012/13 of the adult critical care units demonstrates that the current staffing levels and skill-mix are satisfactory and reflect professional guidelines. This has been enhanced through the expansion of the critical care

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outreach team on each site which will be providing a more robust outreach service 24/7. This development is currently being implemented.

The review carried out in 2012/13 of the neonatal intensive care unit demonstrates that current staffing levels will need to be increased slightly to meet the levels of activity and the professional guidelines for staffing NICU.

## **2.1 Nurse per patient ratios and skill-mix**

Previous investment is reflected in higher nurse per bed ratios since 2008/09 & 2010/11 in most specialties except surgery, however, the current nurse per bed ratio in general surgery is in line with Hurst methodology (2012).

Previous investment is reflected in a higher skill-mix since 2007/08 & 2010/11 in all specialties. However, there has been an overall reduction in skill-mix in general surgery from 60/40 to 57/43 and in T&O from 57/43 to 55/45.

T&O wards have a rota of dedicated therapy support which contributes to the work of the team so the lower nursing skill mix is manageable. In addition, T&O were early implementers of the associate practitioner role (foundation degree programme) and four trainees have completed and are working as effective associate practitioners (band 4); this contributes to the appearance of a skill mix reduction although blend of knowledge & skills required within the team is more robust

## **2.2 Turnover, vacancy, sickness absence and maternity leave**

Turnover of registered nurses and midwives from 2011 to 2012 is in line with the national and local picture indicating relative stability in the nursing workforce.

The impact of current vacancy levels, sickness and maternity leave across the whole nursing and midwifery workforce at 13.5% is similar to 2011. This means that 86.5% of the funded establishment was available for work during the review period in December 2012 and represents a potential risk to the delivery of safe and effective care. This is a priority to address during 2013/14.

In December 2012 Nurse vacancy levels across the 46 wards was 5.96%, this was slightly lower than the total nursing and midwifery workforce (6.19%). Across the 46 wards there were 44.0 WTE registered nurse vacancies and 28 WTE healthcare assistant vacancies. The majority of the vacancies are at band 5 (34.6WTE). Vacancies are only partially off-set by the use of bank and agency staff and overtime.

Sickness rates have reduced since 2011/12 for ward staff, however, they have increased across the nursing and midwifery workforce as a whole, but are in line with national and local levels. The high physical and emotional demand on ward-based teams is reflected in higher levels of staff sickness. For ward-based healthcare assistants, the sickness level in 2012/13 was at 6.9% (reduced from 8.2% during 2011/12). Improved management of sickness in staff is evident, however more emphasis on this is required during 2013/14.

During the winter period, and extended holiday periods additional (extra) beds place additional workload on existing staff and this is associated with higher rates of sickness and some evidence that this in turn impacts on the quality of care for patients. It should be noted that an additional 30 nurses were recruited by the Urgent Care & Long Term Conditions Division for the winter period 2012/13 and a planned increase in the number of staffed beds. However, the number of additional beds required was higher than planned.

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Sickness absence rate across the whole nursing and midwifery workforce was 4.96% in March 2013 and is equivalent to 146.5 WTE.

The absence associated with maternity / adoption leave across the whole of the nursing and midwifery workforce in December 2012 is significant, at 68.9 WTE (2.3%), and there is no allowance for this in the funded establishments. The impact is higher on ward staff at 3.25% (equivalent to 49.4 WTE).

The majority of wards have a high proportion of staff who work 12 hour shift patterns and have done so for a number of years. There is evidence that 12 hour shift patterns can result in higher levels of sickness amongst staff. Short-notice sick-leave is less likely to be filled by temporary staff and therefore the impact is felt by the ward team for a full 12 hour period and may temporarily impact on the quality of care provided to patients.

### **2.3 Temporary staff use**

NHS-P bank fill rate for registered nurse shifts has fallen over the last six months and is currently 50% compared with 70% for healthcare assistant shifts. The unfilled shifts mean that movement of staff between wards and departments is used to fill gaps, which does put some wards under considerable pressure.

The use of temporary staff through NHS-Professionals and agencies has fallen since March 2010, with a significant reduction seen since April 2011 as a result of the implementation of greater monitoring and controls. In general there has not been an associated rise in expenditure on overtime over the same period demonstrating cost reduction set against greater productivity and more efficient use of the staffing resource. However, the combination of vacancies and unfilled shifts means that fewer staff are available to provide care to patients.

### **2.4 Structure of ward budgets**

Most ward budgets (35 out of the 46 reviewed) include a separate bank line which provides a resource as part of the funded WTE to manage peaks and troughs in activity and flexible replacement for sickness. However, ward managers do not appear to be empowered to use this budget as part of their funded establishment and many have misinterpreted the original intention. A proportion of this part of the budget contributes to non-recurrent savings.

Converting this budget into WTE represents an additional 30.3 wte across 35 of the 41 wards, and it is this 'uplifted' total funded establishment that has been used as the baseline when making comparisons with the modelling methods within this review. However, operationally this component of the budget is not included in the establishment for E-Rostering and can-not be used to recruit to substantive vacancies to provide additional cover for maternity leave or long-term sick leave.

### **2.5 Modelling methods to evaluate ward establishments**

Three methods of modelling ward establishments were used:

- Hurst Nursing Workforce Planning Tool (2012). Most wards are near to or slightly below the calculated establishments using this method.
- Association of United Kingdom University Hospitals (AUKUH) tool for measurement of patient acuity, dependency and nursing workload. Most wards have establishments higher than the nursing workload acuity dependency tool suggests is appropriate, however, the monthly snapshot may not effectively capture average workload
- Professional Judgement method. This method showed the closest correlation between calculated establishments and actual establishments for the

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majority of wards. However, for nine wards (five of which were wards with additional/extra beds) the calculated establishments using this method were >15% above actual establishments for those wards.

There was no significant correlation between the findings of the Hurst model and the acuity dependency measurement of nursing workload so it was not possible to synthesise the findings from these two approaches.

The RCN have recently published a statement on the ratio of Registered Nurses to patients on each shift. The range of patients per registered nurse on duty across the wards was found to be 4.5 to 10.9 at the time of a three day snapshot survey. Four wards had average ratios of more than 9.0 and two of these were elderly frailty wards. This exceeds the maximum of 9 for adult wards and 7 for older people's wards recommended by the RCN. All four of these wards achieved at least 74% clinically effective time within the rota demonstrating roster effectiveness, but all were associated with one of the following: sickness rate of 8.6%, a 50:50 skill mix, 33.3% staff with working restriction, or high occupancy levels.

## **2.6 E-Rostering**

All wards are now using the E-Rostering system. A variety of KPIs are available including the '% time worked' indicator, which reflects the % time nurses in post spend on clinical duties. The average achievement of % time clinically effective for December 2012 across all 46 wards was 70.4% against a target of 75%. Only 9 of the 46 wards achieved more than the optimum 75% which demonstrates significant opportunity for improvement.

Meeting the 75% clinically effective measure will require effective annual leave planning to ensure it is evenly spread, effective sickness management, training days are allocated fairly, and management time is used effectively. Managers have the ability to adjust how many staff are on annual leave to manage fluctuations but where maternity or adoption leave or jury service leave exists this measure will be difficult to achieve. 31 out of the 46 wards have an element of maternity leave and only 3 of these wards managed >75% clinically effective time on the December 2012 rota.

## **2.7 Impact of ward staffing indicators on Harm Free Care**

Harm free care measured using the NHS Safety Thermometer tool identifies through a monthly survey of all adult inpatients, the percentage of patients who receive harm free care. Four areas of harm are currently measured:

1. All grades of pressure ulcers whether acquired in hospital or before admission;
2. All falls whether they occurred in hospital or before admission;
3. Urinary catheter related infections;
4. Venous thromboembolism risk assessment and appropriate prevention.

Most wards (35 of 46 wards) demonstrated average Harm Free Care (acquired in hospital) for >95% patients across 2012/13. However, 11 wards did not achieve 95% harm free care, there was no clear link to a lower skill mix but there was a clear association with lower roster effectiveness and 10 out of these 11 wards were carrying an element of maternity leave which had not been back-filled.

Ward managers highlighted the importance of their supervisory role, in line with Francis recommendations, in providing clinical leadership and ensuring high quality care. However, the maximum allocation within budgeted establishments is currently 0.4 WTE of their time which generally is taken up with managing recruitment, rostering and staffing issues.

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Many ward managers reported that their funded establishments felt 'about right' but that the impact of unfunded additional beds, poor NHSP-bank fill, maternity leave, and staff being moved to different wards put additional pressure on their teams.

### **3. RECOMMENDATIONS**

As a result of the review the following priorities have been identified and further work will be required to inform the areas where an impact and improvement can be made within existing resources and those which will require additional investment.

Investment proposals will be presented in the form of a business case to Strategic Investment Group (SIG) and through to the Board of Directors via the Finance and Investment Committee.

#### **1. Optimise the use of existing resources**

- Review the structure of ward budgets to determine the risks and benefits of the separate bank budget with each ward manager. Consideration should be given to recruiting to this component of the ward establishment to mitigate risks such as maternity leave and long term sickness which may impact across a number of wards.
- Review the % time worked (clinically effective) indicator to exclude the impact of maternity leave and consider whether it remains the most effective indicator as a measure of effective rostering practice for inclusion in the balanced scorecard.
- Centralised rostering support for wards with low roster effectiveness (those with roster effectiveness < 75% to enable good quality rostering
- Recommend a maximum level for working restrictions to reduce the impact of flexible working on individual ward teams and introduce movement of staff to other wards where flexible working request may be able to be accommodated.
- Plan the deployment of the Associate Practitioners on completion of Foundation degree in order to optimise the impact of well trained support roles

#### **2. Improve clinical leadership**

- Refocus of the Matron /Senior Matron role on quality to provide senior clinical leadership to ward teams and ensure that patient flow and bed management issues are dealt with by the site-based capacity & flow teams.
- Increase the amount of supervisory time for ward managers to enable them to perform their supervisory role more effectively to ensure the delivery of a safe and effective service that exceeds the expectations of patients and the public.
- Enable all ward managers to undertake the clinical leadership programme to develop key skills and competences within the Shared Purpose Framework incorporating peer support and challenge, observations of care, emotional touch points with patients and developing their ability to develop a workplace culture that improves quality.
- Consider administrative support for ward managers (ward assistant) to support E-Rostering, annual and study leave planning and auditing to increase the time ward managers have to talk with patients and families, plan and co-ordinate care across the ward, monitor the quality of care provided, and to work-alongside students, newly qualified nurses and other staff as effective role models. .
- Review the skill mix out of hours to ensure the availability of experienced band 6 nurses, across wards, to provide clinical leadership and advice, technical clinical skills (intravenous cannulation and drug administration when workload is high), escalation of concerns to senior doctors, and nurse-initiation of discharges at weekends.



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### **3. Improve alignment of staffing requirements to demand**

- Establish robust planning for escalation beds, involving the professional judgement of the ward manager, to include a systematic approach to staffing to ensure a dedicated funded establishment is available and recruited to ahead of winter pressures.
- Review the acuity dependency nursing workload assessment tool to develop explicit criteria to enable consistency in evaluation of nursing workload.
- Review the efficacy of 12 hour shifts given the increasing work-load, acuity and dependency of patients, and relatively high levels of sickness in some ward areas.
- Agree most appropriate method for back-filling for maternity leave on a flexible basis
- Monitor impact of activity and workload on staffing resources more frequently by incorporating the RCN recommended key performance indicators into the ward quality dashboards

### **4. Consider specific areas for investment**

The following areas will be considered for investment alongside optimising current use of resources.

- Medical wards to reflect current acuity and dependency of patients with specific attention to Harvey ward (KCH), Cambridge J and Cambridge K (WHH)
- Stroke units to reflect current acuity and dependency of hyper-acute stroke patients and band 6 nurses spending 30% time away from the ward.
- Healthcare of Older People/frailty wards to address the high ratio of patients to Registered Nurses per shift and acuity /dependency of patients
- Gradual move towards 60:40 skill mix in all adult wards to ensure ratio of Registered Nurses to patients is at RCN recommended level for specific ward environments and with specific attention on surgical and T&O wards
- Paediatric ward establishments to support the additional high dependency and outpatient activity, and to deliver more ambulatory care pathways for children.
- NICU to reflect BAPM guidelines and enable 1:1 nursing in the special care area of NICU

### **5. Evaluate the size of wards to develop a model of best practice that achieves high level productivity, safety, cost effectiveness and meets service needs**

- Consider reconfiguration of wards and possible co-location of wards to provide the best quality care and patient and staff experience.
- Review and re-evaluate any changes in ward establishment configuration and agree a sign off process for making changes in budgeted establishments and skill-mix.

**The Board of Directors are asked to discuss and approve the recommendations.**

**Julie Pearce**  
Chief Nurse, Director of Quality  
& Operations

**Helen O'Keefe**  
Acting Deputy Chief Nurse

**May 2013.**

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# EAST KENT HOSPITALS UNIVERSITY NHS FOUNDATION TRUST

BOARD OF DIRECTORS – 24 May 2013

## WARD ESTABLISHMENT REVIEW 2012/13

### 1. INTRODUCTION

Regular ward staffing reviews have been undertaken since 2007/08 to ensure they are fit for purpose.

This report outlines the 2012/13 review which has included all 46 wards across the Trust including:

UC&LTC	Medicine Clinical Decision Units Coronary Care Stroke Health Care of the Older Person (HCOOP) / Frailty
Surgical Services	Surgery Trauma & Orthopaedics Critical Care
Specialist Services	Renal Haematology / Oncology Gynaecology Paediatrics Neonatal

The outcomes of the 2012 reviews of Emergency Departments and Theatres are also included.

This paper provides information on the findings of the review and presents recommendations to the Board of Directors.

### 2. BACKGROUND AND PREVIOUS INVESTMENT INTO WARD STAFFING

In every setting in every specialty nursing staff are the primary deliverers of Health-care. There are no national targets or guidelines for the number of nurses required to deliver care safely, to meet basic needs, prevent complications and avoid un-necessary deaths or to deliver care to a recognised level of quality (except in a few specialist areas such as intensive care).

In December 2010 the Royal College of Nursing (RCN) produced two key publications; a paper titled 'Guidance on safe nurse staffing levels in the UK' and an RCN policy position titled 'Evidence-based nurse staffing levels'. These publications do not set targets for staffing per bed but they do set out the essential elements to planning and reviewing nurse staffing. The Care Quality Commission recommends that staffing levels are reviewed every 2 to 3 years.

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## 2.1 2007/08 review

In 2007/08 a structured review was undertaken across 37 wards, reported to CMB in March 2008 and the Board of Directors in May 2008, and resulted in the investment of £2.1m into ward establishments which was used to fund 67 whole time equivalent (wte) additional band 5 posts across these wards. The £2.1m investment was drawn down into establishments as recruitment took place during summer 2008.

## 2.2 2008/09 review

The 2008/09 review of ward staffing levels and skill mix was undertaken across 49 wards including A&E, ECC, CDU, Medicine, HCOOP, Speciality medicine, Oncology, Child Health, Surgery, Head & Neck, T&O, Renal, Vascular, Urology and Gynaecology. The review was reported to CMB on 24 April 2009 and included recommendations to maximise the use of the existing resource and create a more flexible and competent workforce.

Two of the most significant recommendations implemented included:

- Improved use of the current resource by implementing electronic rostering. Implementation commenced in July 2010 and was completed by the end of 2012.
- Investment into the ward based Associate Practitioner (band 4) role to create a more flexible and competent workforce. 38 ward based trainees are currently undertaking a 2 year Foundation degree work-base learning programme with the first cohort completing in April 2013.

Following the 2008/09 review for paediatric staffing the Trust supported secondment for an A+E adult nurse to train as a Registered Children's Nurse to enhance the provision of urgent and emergency care of children. Other recommendations included development of support worker roles to change skill-mix and the use of annualised hours.

**Table 1:** Summary of previous investment into ward staffing

Year	Investment	Value	Expected outcome of investment
2008/09	67 wte additional band 5 posts	£2.1m	Improved quality, safety and patient experience
2010/11	E-Rostering	£1.2m over a 5 year period to cover all staff groups	Recurrent savings of £500k due to reduction in temporary staffing costs
2011/12	38 trainee associate practitioners	£323k over a 2 year period	Conversion of band 5 vacancies to band 4 to generate £692k savings in 2012/13 and recurrent savings of £184k from 2013/14

## 2.3 2011/12 review

The 2011/12 review of ward establishments was undertaken across the 41 adult wards. The review was reported to The Trust Board on 24 February 2012 and the following recommendations have been implemented during 2012/13:

1. Maximising the use of existing resources
  - a. Incorporation of the roster effectiveness measure in the balanced scorecard including a target achievement of 75% to ensure maximum availability of staff to deliver patient care.

- b. Improved management of sickness for ward based healthcare assistants.
- 2. Enabling clinical leaders
  - a. Implementation of a clinical leadership programme with particular relevance for ward managers.
  - b. Triangulation of workforce indicators with quality outcomes as part of a ward quality dashboard.
  - c. Monthly evaluation of nursing workload

Ward staffing levels and skill-mix are regularly reviewed as part of the annual business planning cycle. The methodology used to support this work involved a combination of the 'staffing costers' and professional judgements on the number of staff required on each shift. The financial modelling tool 'staffing costers' (developed by EKHUFT) has enabled ward managers and matrons to define the numbers of nurses by band required to manage the workload on an average shift, taking into account shift times, and periods of shift overlap.

The financial model allows for assumptions to be used for calculating the nurse establishment as a wte which generates the number of wte nurses by pay band. The calculation assumes percentage allowances to take into account annual leave and study leave (18%), sickness (3%), with no allowance for maternity/paternity leave.

The model provides a systematic way of calculating staffing establishments but does not take account of patient acuity, dependency and associated nursing workload. The case mix and dependency will have changed as a result of the efficiency and productivity gains produced by managing increased activity through reduction in length of stay, improvements in managing the system, and increase in day case and ambulatory care.

This review includes the following indicators that the RCN (2010) has identified as needing to be routinely monitored by providers, commissioners and regulators:

**Table 2:** RCN recommendations of Key Performance Indicators to be routinely monitored as part of ward staffing reviews

Indicator	Rationale
Actual nursing staff in post as a proportion of total establishment	To identify current staffing relative to the planned number of nurses required – per ward, specialty, trust
Proportion of registered nurses as percentage of total nursing staff. This denotes skill-mix	The benchmark average on general hospital wards is 65%
Nurse staffing relative to population served	Nurse per occupied bed (NPOB)
Nurse staffing relative to patients	Ratio of patients per registered nurse provides an indicator of actual staffing on hospital wards.
Staff turnover	To provide a stability index
Sickness absence	To monitor changes over time
Comparison with external benchmarks and modelling tools	To identify areas where staffing is likely to be inadequate and in need of further review

The RCN recommends that using these indicators to benchmark wards can provide an early warning system. For example, if the NPOB is lower than external benchmarking suggests is appropriate, the number of staff in post is well below that planned, there is high sickness absence and the skill-mix is considerably lower than

average for that specialty there is a risk that nurse staffing is inadequate and in need of review.

### 3. METHODOLOGIES AND GUIDELINES FOR DIFFERENT SPECIALTIES

#### 3.1 Range of methodologies

Different methodologies and guidelines are available to support evaluation of a range of specialties. The following table outlines those relevant to this review:

**Table 3: Methodologies used to evaluate specialties**

Area	Methodology
Wards	Association of United Kingdom University Hospitals (AUKUH, 2007) acuity dependency, Professional Judgement, Hurst Nursing Workforce Planning Tool (2012).
Stroke Units	NHS London guidance
Emergency departments (EDS)	College of Emergency Medicine, Foundation Trust Network
Theatres	Association for Perioperative Practitioners (AfPP 2008)
Critical Care Units	British Association of Critical care Nursing (2009)
Paediatrics	Royal College of Nursing (RCN 2003) guidelines
Neonatal Intensive Care	Toolkit for High Quality Neonatal Services (Neonatal Networks 2009), British Association of Perinatal medicine (BAPM 2001)

#### 3.2 Emergency departments (EDs)

A Demand and Capacity Review was undertaken in 2012 which included examination of patient flow through the EDs, clinical decision making by staff and comparison with other Trusts as part of the FTN benchmarking process which assessed staffing and performance from April 2011 to January 2012 nationally.

The review identified that an additional 14.18 WTE staff were required to meet demand. The additional posts are identified in figure 1 and the UCLTC division funded and recruited to these posts during 2012/13. Significant challenges remain nationally in availability of middle grade doctors and these posts remain vacant. Due to difficulty recruiting to the Nurse Consultant posts the role has been redesigned to a senior matron role and one post has been recently recruited to.

**Figure 1: Additional staffing resources identified for EDs**

Additional Staffing Resources identified in A&E Departments

	WHH		QEQM		TOTAL	
	wte	£k	wte	£k	wte	£k
Middle Grade			0.40	39	0.40	39
Prospective Cover		56		56		113
Nurse Consultant B8b	1.00	60	1.00	60	2.00	120
Majors Nurse Practitioner B8a	1.00	49	2.00	98	3.00	147
Nurse Band 7	-1.00	-44	-1.00	-44	-2.00	-88
Nurse Band 5			3.67	132	3.67	132
Technician / Generic Worker Band 3	4.42	80	2.69	49	7.11	129
Uplift Band 2 to Band 3 (HCA)		11		8	0.00	19
<b>SUB TOTAL</b>	<b>5.42</b>	<b>213</b>	<b>8.76</b>	<b>398</b>	<b>14.18</b>	<b>611</b>
Weekend Therapists	1.00	46	1.00	46	2.00	92
<b>TOTAL</b>	<b>6.42</b>	<b>259</b>	<b>9.76</b>	<b>444</b>	<b>16.18</b>	<b>703</b>

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Further work has been undertaken to rework the rotas through E-Rostering and introduce an improved rota mapped to the profile of patient attendance. These rotas, developed by the ED staff and introduced in April 2013, provide more robust Emergency Nurse Practitioner cover to improve quality of care and patient flow through the department.

A similar review is currently underway for Emergency Care Centre (ECC) at KCH and should be completed during Quarter1 2013/14

### **3.3 Theatres**

A Kent and Medway review of theatre staffing, led by Medway Foundation Trust, was undertaken in 2012 and was reported in the autumn. Current establishments were benchmarked against the AfPP recommendations per theatre list of:

- One Registered Anaesthetic Assistant
- One anaesthetic assistant
- Two Scrub Practitioners (dependant on need of the patient – can be more or less)
- One Circulator
- One recovery

The review identified a required establishment of 410.12WTE against the current establishment of 397.91 WTE. However, it is not clear whether the methodology was applied appropriately for our services, the recommendations were not Trust specific and so few conclusions can be drawn at this stage A further review, led by the Surgical Divisional Head of Nursing, is being undertaken in quarter one 2013/14 which will take into account activity across all 35 theatres over the 24 hour period.

## **4. CURRENT WARD ESTABLISHMENTS**

The impact of current vacancy levels, sickness and maternity leave across the whole nursing and midwifery workforce is 13.5% meaning that only 86.5% of funded establishments were available for work in December 2012, similar to 2011. The absence associated with maternity leave is significant, at 68.86wte (2.33%), across all nursing and midwifery and there is no allowance for this in the establishments.

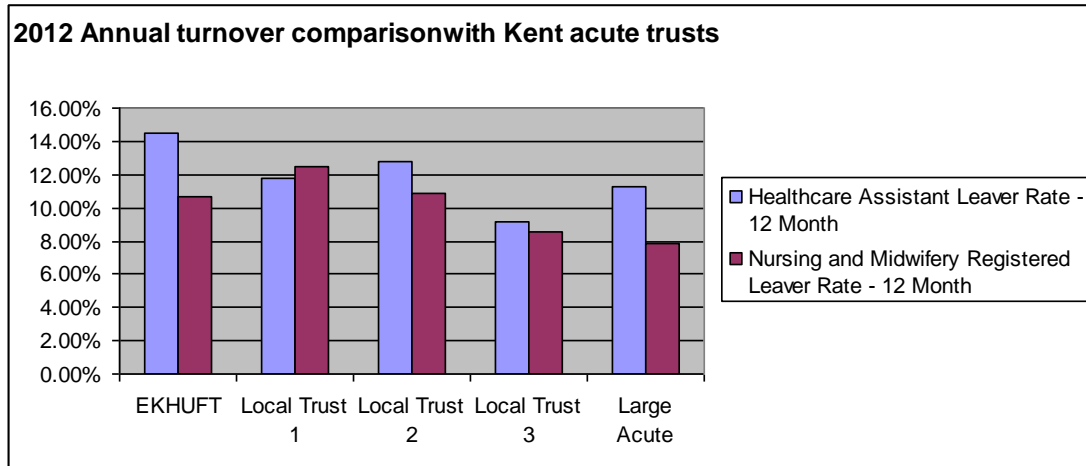
A summary of current funded establishments and staff in post is provided in Appendix 1.

### **4.1 Turnover**

Turnover figures include only staff who have left the employment of the organisation and do not include staff who are internally promoted.

Data from the Health and Social Care Centre (NHS I-View) demonstrates that our turnover of registered nurses and midwives at 10.68% during 2012 is higher than the average large acute Trust and but lower than two of the three local acute hospital Trusts. The turnover of healthcare assistants at 14.5% is higher than the average large acute Trust and higher than all three local acute hospital Trusts. This however includes TUPE transfers out of EKHUFT during 2012/13 (CAMHS and Nursery staff).

**Figure 2: Annual turnover comparison with national and local acute Trusts**



ESR data (excluding TUPE staff) demonstrates that our overall turnover has increased in registered nurses and midwives to 9.5% during 2012 from 7.5% during 2011. The turnover of healthcare assistants has fallen to 10.6% during 2012 from 12.6% during 2011.

#### 4.2 Vacancies and maternity leave

Across the 46 wards reviewed, where the total funded establishment of 1514.9 WTE represents 48% of the total registered nursing & midwifery workforce and 52.1% of healthcare assistants, there are 44 WTE registered nursing and 28 WTE healthcare assistant vacancies. 34.6 WTE of the registered nursing vacancies were band 5. As a result of the staffing review, consideration should be given to identifying what proportion of the current nursing vacancy for band 5 posts should be uplifted to band 6 posts to improve career progression, and reduce staff turnover for more experienced nurses at the top of band 5.

The total EKHUFT nursing and midwifery workforce funded establishment, including specialist nurses and midwives, is 3156.6 whole time equivalent (WTE) as at March 2013. Vacancy levels at March 2013 were 6.2% (195 WTE). 105 WTE of these vacancies were band 5 which is a slight increase from 91 at the time of the last review.

The resourcing team have made improvements to the recruitment process resulting in a reduction in average time between the date of an advert being opened on NHS Jobs and the date that all pre-employment clearances are completed from 18 to under 9 weeks over the last two years thereby reducing the impact of vacancies, and have maintained this level over the past 6 months.

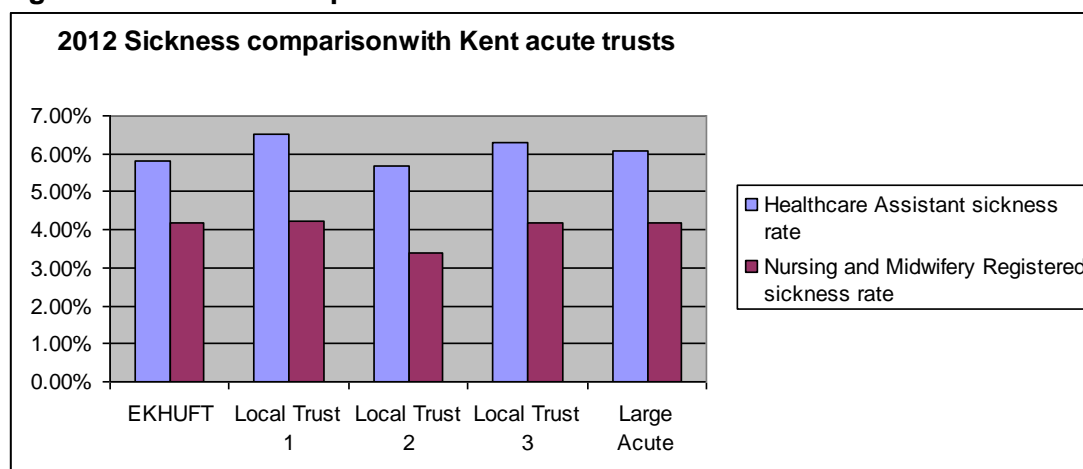
Across the wards reviewed maternity / adoption leave at 3.3% (49.4 WTE) at the end of March 2013 was proportionally higher than the 2.3% (68.9 WTE) across the whole nursing and midwifery workforce. There is no available data to compare this with the national picture.

#### 4.3 Sickness absence

Data from the Health and Social Care Centre (NHS I-View) demonstrates that our average sickness rate in 2012 for registered nurses and midwives at 4.2% was similar to the average large acute Trust and two of our three local acute hospital Trusts.

The average sickness rate in 2012 for healthcare assistants at 5.8% was lower than the average large acute Trust and two of our three local acute hospital Trusts.

**Figure 3: Sickness comparison with national and local acute Trusts**



ESR data demonstrates that:

- Sickness absence rate across the whole nursing and midwifery workforce was 4.96% in March 2013 and equated to 146.5 WTE.
- Sickness rates have reduced since 2011 for ward staff but have increased across the nursing and midwifery workforce as a whole.
- Sickness rates are lower amongst registered nurses who are working on wards but higher for healthcare assistants. Sickness rates at 6.9% for ward healthcare assistants, although reduced from 8.2% last year indicating improved management of sickness, does still reflect the high physical and emotional demands of ward work.

**Table 4: Comparison of ESR Trust wide nursing and ward nursing absence rates March 2013 compared to December 2011.**

	Staff group	Sickness %	Sickness %
		December 2011	March 2013
<b>Wards reviewed</b>	HCA & Other Support	8.20%	6.93%
	Registered Nurses	4.78%	4.14%
<b>All N+M</b>	HCA & Other Support	5.90%	6.24%
	Registered Nurses & Midwives	4.11%	4.37%

Considerable work has been undertaken to support managers in ensuring robust management of sickness and return to work. The Department of Occupational Health works with the divisional leadership teams to support efforts to ensure that the sickness absence policy is applied consistently. The Occupational Health team has implemented a motivational humanistic approach, working with health and well being initiatives to enable staff to return to work eg interventional physiotherapy. The pilot within UC&LTC to review those who are off sick to ensure compliance with the policy and provide early access to return to work initiatives demonstrated a considerable impact on absences by using early interventional physiotherapy. The Trust has recognised the potential this initiative has to reduce lost work days and the initiative is now fully funded with a 0.6 WTE Physiotherapist on each site. The Surgical Services and Clinical Support divisions are now embracing this initiative, supported by the Occupational Health team.



The Trust recognises that a healthy, well motivated workforce deliver better care and have less absences and in November 2012 the Health and Wellbeing Strategy was launched to address NICE public health priorities around obesity, smoking and mental health. Staff engagement through the We Care Programme has enabled feedback to be incorporated into practical solutions to improve staff well being. The 'Take 5' initiative, designed to help people make small changes to their lifestyle to improve their health and wellbeing, commenced with an 8 week pilot involving 60 members of staff, and Occupational Health are now signing up individuals and teams, including clinical and nonclinical staff.

Additional allowance or percentage headroom within funded establishments is 21% which includes a 3% allowance for sickness. In reality sickness is higher than 3% and not all staff are entitled to the 30 days annual leave if they have less than 5 years NHS service, but even if the calculated allowance is adjusted for a more accurate sickness level of 4.6% this should still allow staff an average of 4 study days per year.

**Figure 4: Ward establishment allowance calculation adjusted for actual sickness absence levels**

**Nursing Rota - Headroom Calculation:**

	<b>Hours</b>	<b>Days</b>
Total Hours Paid per Year 1.00 wte	1955.36	260.72
Annual Leave Average x 30 days	225.00	
Bank Holidays x 8	60.00	
Sickness 4.6%	89.95	11.99
Mandatory and other training x 4	30.00	
<b>Total Hours Absent</b>	<b>404.95</b>	
<b>Headroom %age</b>	<b>20.71%</b>	

Therefore, if sickness was managed more effectively it would enable some of the increased available hours to be invested into more training for staff and a reduction in the use of temporary staffing.

#### 4.4 Temporary staff usage

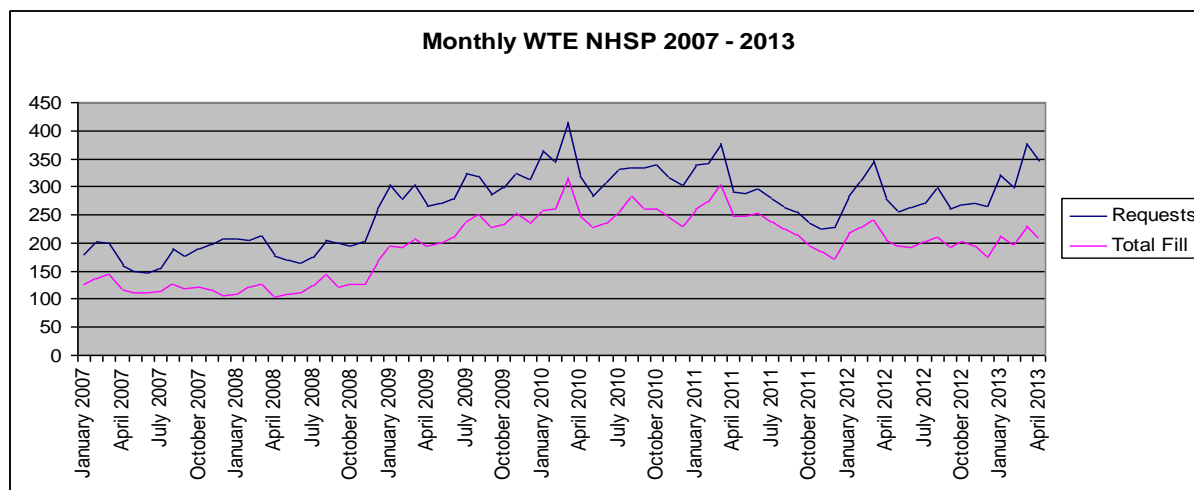
The level of temporary staff usage across the divisions is managed with appropriate controls and monitored in relation to total ward staffing expenditure. The current use of temporary staff through NHS Professionals provided 18,000 hours in December 2012 with 52.1% hours filled by the NHS-P bank and 7.5% filled by agency.

The use of temporary staffing, including NHS-P bank and agency, is fairly consistent at delivering a fill rate of around 60%. Agency has been minimised and is now largely restricted to theatres and day surgery areas.

Fill rate for registered nurse shifts has fallen over the last six months and is currently 50% compared with almost 70% for healthcare assistant shifts. Most registered nurse shifts (56%) worked through NHS-P are by our own substantive staff but only 40% of healthcare assistant shifts are worked by our own staff. This partially closes the gap presented by vacancies and planned / unplanned absences but does operationally present a challenge for both the Trust and our supplier through NHS-P particularly in filling gaps at short notice. Issues surrounding NHSP bank fill rates, which are currently below the overall agreed target of 75%, are being addressed with the supplier through the appropriate contract management processes.

With rigorous management controls through the temporary staff booking process the use of NHS-P overall has fallen since March 2010 with the most dramatic reduction seen since April 2011. This has also led to the significant reduction in agency use seen over the last two years. It should be noted that no substantive member of staff is permitted to work additional shifts for the Trust through an agency and the use of agency healthcare assistants has been completely eliminated since 2010. The Audit Commission ward staffing benchmarking review 2011/12 found that our percentage costs for bank staff at 7.4% is below the median of 7.7%, and below the Kent comparator.

**Figure 5: Trend of NHS-P demand and fill in WTE from 2007 to 2013**



Initiatives to reduce cost of temporary staff and improve fill rates have been implemented over the last two years:

- Enabling newly qualified nurses to work through NHS Professionals during the Preceptorship period on the ward where they hold a substantive post three months after qualification since 2010/11.
- Reduction of pay from agenda for change spine point 3 to 1 for healthcare assistants from August 2011
- Providing an opportunity for healthcare assistants with nursing home experience to gain the skills and competence to work with the hospital environment from December 2011.
- Winter incentives for NHS-P bank workers working additional shifts with no cancellations, to win shopping vouchers.

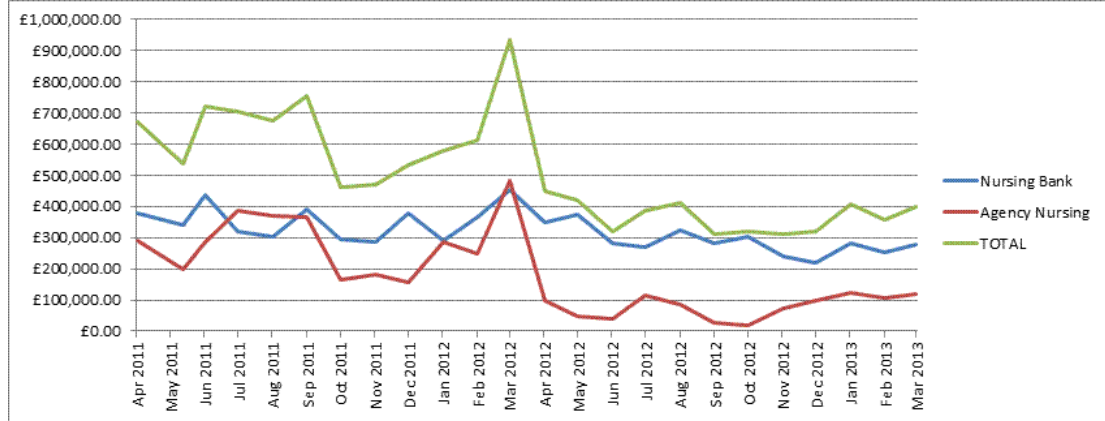
NHSP has agreed to plan the recruitment of a number of European National nurses, mostly from Ireland, to provide a dedicated resource ahead of the increased demand anticipated in winter 2013/14.

The impact of this reduction in NHSP use has been a reduction in monthly expenditure over time. This equates to a reduction in spend as indicated in the table below: from £1,429,600 in quarter 3 2010/11 compared to £1,038,614 in quarter 3 2012/13, demonstrating a cost reduction of £390,986 over the 3 month period set against greater productivity and more efficient use of the staffing resource.

**Figure 6: Q3 NHSP nursing and midwifery expenditure 2010/11 to 2012/13**

Q3	Spend	Variance
2010/11	£1,429,600.00	
2011/12	£1,137,500.00	-£292,100.00
2012/13	£1,038,614.00	-£98,886.00

**Figure 7: Total monthly Nursing Bank & Agency spend April 2011 to date**



In Q3 2010/11, the average WTE worked as overtime and excess part time hours was 100wte per month, for the same period in 2011/12 it was 72 wte per month, and for the same period in 2012/13 it was 74 wte per month. This demonstrates that the reduction in NHSP spend is not associated with an increase in overtime worked.

#### 4.5 Bed occupancy

A measure of ward workload was introduced as part of this review to reflect the impact of additional beds. Occupancy is currently reported within the ward quality dashboard as number of occupied beds at midnight divided by the number of available beds, represented as a percentage. However, this does not capture the actual occupancy against funded establishment.

For the purpose of the review the actual numbers of patients reported as being on the ward at midnight each day during January 2013 was divided by the maximum capacity of funded beds and represented as a percentage. For example, for all wards with additional beds the occupancy was calculated as follows:

Total patients at midnight over the 31 day period, divided by capacity of funded beds for the 31 day period multiplied by 100. This revealed that occupancy against funded bed base exceeded 100% in 13 of the 22 wards with additional beds during January

NHSP staff are frequently used to fill the gap but the fall in NHSP fill rate means that the additional workload is often absorbed by the existing staff.

#### 4.6 Throughput

On some wards, particularly surgical, trauma & orthopaedic wards, high turnover of patients places additional workload which is not captured by monitoring acuity dependency as many patients are day cases.

For the purpose of the review throughput was represented by dividing the total number of patient episodes (excluding ward attenders but including day cases) in the month of January 2013 divided by 31 and then further divided by the number of

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funded beds to provide an index of throughput. There was a wide variation in the results but the Gynaecology and some surgical and T&O wards have notably higher indices than the medical wards which reflects the additional workload generated by patients with a shorter length of stay.

## **5. MODELLING METHODS**

As part of the review of ward staffing meetings were held between the Chief Nurse & Director of Quality & Operations, Acting Deputy Chief Nurse and each ward manager for professional consultation on staffing requirements, deployment of the staffing resource, factors impacting on staffing and the impact on quality including patient feedback, safety and effective care indicators within the ward quality dashboards. Valuable feedback was gained which has contributed to the review.

Many ward managers reported that their funded establishments felt 'about right' but that the impact of unfunded additional beds, poor NHSP-bank fill, maternity leave, and staff being moved to different wards put additional pressure on their teams.

Ward managers identified opportunities for improvement in quality and patient experience but reported that this would be more achievable if they had additional time for supervision'. Most ward managers have 0.4 WTE of their time built in to the rota as management days and spend a considerable amount of this time managing recruitment, rostering and staffing issues some of which could be undertaken by a ward manager assistant type role. This would release ward managers to spend more time, as the most experienced senior nurse on the ward, with patients and staff, ensuring good communication and engagement with patients and relatives/carers, gaining patient feedback to avoid unnecessary complaints, ensuring high quality safe care and prevention of harm for patients, working with newly qualified nurses and student nurses, ensuring that nurses are able to attend ward rounds and participate in discharge planning meetings for patients with complex needs, and providing supervision and support for the whole team.

A summary of the comparison of current establishments and the modelling methods used is provided in Appendix 2.

### **5.1 Temporary staffing budgets**

Current funded establishments for wards are comprised of registered nurses, healthcare assistants and ward clerk support. However, most ward budgets (35 out of the 46 reviewed) also include a separate recurrent bank line which provides a resource in addition to the funded WTE to manage peaks and troughs in activity and replacement for sickness more flexibly. This separate bank line was originally derived from the funded establishment as unfilled vacancy and was thought to enable the staffing resource to be used more flexibly if identified as a separate bank line.

However, as it is not defined as part of the funded establishment, it is not factored into the E-Rostering system as available to cover shifts and therefore cannot be used to incorporate within planned rosters without requesting for additional shifts to be enabled on the system through the E-Rostering support team. Additionally some ward managers have interpreted the separate bank line as not part of the staffing establishment leading to misinterpretation of its original intention. This serves to over-complicate the management of the existing resource and does not support ward managers in managing the staffing resource effectively.

Prior to the 2011/12 ward staffing review the separate bank line was not recognised in previous staffing reviews and therefore may have underplayed the level of resource for benchmarking purposes. In order to ensure that it is included for the

purposes of benchmarking the total available resource the WTEs for bank staff were calculated by taking the recurrent bank budget and splitting it by registered nurse and healthcare assistant according to actual usage during January to December 2012. These amounts were converted to hours using the average NHSP hourly cost (supplied by NHSP) for each and the hours were converted to WTE.

If this resource is converted into WTE it accounts for an additional 30.31wte across 35 of the 41 wards, and equates to between 0.66 and 1.53 wte per ward. This 'uplifted' total funded establishment has been used as the baseline when making comparisons with the Hurst model and the AUKUH acuity and depending modelling methods within this review.

It was recommended, following the previous staffing review in 2011/12, that the structure of ward budgets were reviewed to determine the risks and benefits of the bank line. It appears that few wards have been supported to recruit to this component of the resource as it accounted for an additional 33.9 WTE across 35 of the 41 wards in 2011/12.

## 5.2 Skill-mix

Previous investment is reflected in a higher skill-mix since 2007/08 in all specialties but there has been an average reduction since 2008/09 in general surgery from 60/40 to 57/43 and in T+O from 57/43 to 55/45. The conversion of some vacant registered nurse posts to support worker posts, to ensure availability of workforce to meet service demands, took place from 2010 -2012 when there was some difficulty in attracting experienced registered nurses into these specialties.

Most T+O wards have a rota of dedicated therapy support which contributes to the work of the team so the lower nursing skill mix is manageable. In addition, T+O were early implementers of the associate practitioner role (foundation degree) and four trainees have completed and are working as band 4s which contributes to the appearance of a skill mix reduction.

The skill-mix for the acute medical wards and the HCOOP/rehabilitation wards has remained stable, however, linked to the acuity of patients and overall work-load for front-line teams, consideration will need to be given to both the staffing level and skill-mix for these areas.

**Table 5: Average current skill-mix across specialties comparison with previous staffing reviews**

Average skill-mix				
Specialty	2007/08	2008/09	2011/12	2012/13
Medical wards	55/45	56/44	56/44	57/43
CDUs	NR	NR	NR	62/38
Coronary Care	78/24	76/24	81/19	81/19
Stroke	51/49	63/37	63/37	61/39
Rehabilitation	48/52	53/47	54/46	55/45
Surgery	53/47	60/40	55/45	57/43
T+O	53/47	57/43	56/44	55/45
Renal, vascular & Urology	53/47	62/38	62/38	
Renal	NR	NR	NR	63/37
Haematology	NR	NR	NR	69/31
Gynaecology	NR	NR	NR	59/41
Paediatrics	NR	NR	NR	81/19
NICU	NR	NR	NR	92/8
Critical Care	NR	NR	NR	89/11

NR – Not reported

Service delivery models recently implemented, e.g Hospital at Home and Ambulatory Care, largely require the skills and competences of registered nurses, most of whom have been recruited from our own ward teams. As the numbers of wards are reduced further we will need to ensure the maintenance of an appropriate skill-mix.

### 5.3 Whole time equivalent per bed

Previous investment is reflected in higher nurse per bed ratios since 2008/09 in most specialties except surgery, although it is in line with Hurst (2012) Nurse per Occupied bed (NPOB) Comparisons are shown against the most appropriate Hurst where available, or more than one where different dependency groups are cared for within the same ward environment.

**Table 6: Average current WTE per bed comparison with previous staffing reviews and Hurst (2012) recommendation.**

Average staff : bed ratio					
Specialty	2007/08	2008/09	2011/12	2012/13	Hurst NPOB
Medical wards	1.14	1.19	1.28	1.33	1.23
CDUs	NR	NR	NR	2.18	1.79/1.23
Coronary Care	2.22	2.2	2.42	2.76	3.26*
Stroke	1.19	1.52	1.57	1.75	1.17*
HCOOP / Frailty	1.10	1.18	1.29	1.47	1.4
Surgery	1.09	1.28	1.46	1.38	1.39
T+O	1.12	1.17	1.21	1.32	1.24
Renal, vascular & Urology	1.06	1.23	1.18	NR	NA
Renal	NR	NR	NR	1.5	2.56/1.23
Haematology	NR	NR	NR	1.38	2.01/0.48
Gynaecology	NR	NR	NR	1.96	1.24*
Paediatrics				1.21	2.18*

NR – Not reported

\*The Hurst NPOB tool is not particularly useful in benchmarking against the following specialties:

- Coronary care units due to the closest fit being a high dependency unit
- Stroke units as our funded establishments include around additional 5.0 WTE stroke thrombolysis nurses which are largely non ward-based . These nurses have to be available to leave the ward to administer thrombolysis in A+E and provide 1:1 care for the first 24 hours.
- Gynaecology due to the tool not capturing outpatient and ward attender activity
- Paediatrics due to the case mix within the 76 wards which contributed to the model not being known and calculation of different elements of the ward activity of dependency e.g. high dependency, ambulatory care being calculated independently and added together which provides an inflated calculated establishment.

The average staff:bed ratios include the 29 trainee Associate practitioners who are working across many wards areas. These trainees are 'additional' to the funded establishment, supported by a business case approved in 2011 to allow 85% supernumerary time during their training. They spend three days per week working as part of the ward team whilst undertaking the two year Foundation Degree in Health through Canterbury Christ Church University. They are fully integrated into the ward team and experience 'placements' across the whole patient pathway and

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although are largely supernumerary are expected to contribute to a reduction in temporary staffing expenditure during their 2<sup>nd</sup> year of training. This effectively boosts ward establishments to a degree even after taking into account the time required for supervision and mentoring.

#### **5.4 Hurst Nursing workforce planning tool**

The Nurse per Occupied Bed (NPOB) formulae (Hurst 2012) were applied to the main specialties. These formulas are unique because they are derived from data collected in same specialty wards. The wards providing these data (across the UK) passed a quality test, that is, none fell below a pre-determined quality standard to avoid projecting from inadequately staffed wards. Hurst formulae are available for a wide range of specialties and all wards were benchmarked against the most appropriate 'fit'. The tool provides a calculated establishment in relation to number of beds and NPOB guidance per specialty.

Calculation of establishments using the Nurse per Occupied Bed (Hurst 2012) method suggested that most ward establishments are near or above recommended Hurst levels. The current establishments of 4 wards are >15% below Hurst levels but two of these wards are Paediatric wards where it is acknowledged that there are limitations in the value of this tool.

#### **5.5 Measurement of acuity / dependency and nursing workload**

The dimensions of patient dependency and acuity are important variables in determining nursing workload and the Association of United Kingdom University Hospitals (AUKUH 2007) acuity dependency tool, now known as the Safer Nursing Care Tool, was applied to study current nursing workload in all wards to calculate ward establishment. Monthly data has been collected during 2012/13 for all adult wards as part of the monthly NHS Safety Thermometer 'Harm Free Care' survey. Quality control is provided by matrons who consistency check submissions for all their wards.

Calculation of establishments using the AUKUH (2007) method taking account of nursing workload associated with patient acuity and dependency demonstrated little correlation between calculated and actual establishment for most wards. 2 wards have actual establishments >15% below those suggested by the tool but the calculated establishment for 38 wards is below actual establishment.

There was no correlation between the findings of the Hurst model and the AUKUH tool so it was not possible to synthesise the findings from these two approaches. The lack of correlation may be due to normal variations of nursing workload and the limitations of extrapolating average nursing workload from the monthly 'snapshot' on one day per month. However, some ward managers have reported some variation in interpretation of the levels within the AUKUH tool particularly over the past year as the proportion of highly dependent and acutely ill patients has increased.

Nursing workload is directly related to patient acuity and dependency. That is, the level of patient need in meeting activities of daily living combined with the complexity of treatment of the medical condition which necessitated admission to hospital. Examples of therapies and treatment which increase nursing workload include the care of patients requiring non-invasive respiratory support such as CPAP or BIPAP, caring for patients requiring enteral or parenteral nutrition, management of central venous lines, tracheostomy care, complex medication regimes including oral and intravenous therapy, neurological assessment, monitoring and observation for signs of deterioration and escalation of care.

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Nursing workload is further increased when supporting patients with complex nursing care needs including altered states of consciousness, patients with dementia, complex mental health needs or complex communication difficulties associated with learning disability. Increasing the throughput of patients and decreasing length of stay generates additional nursing work related to assessment on admission, and planning safe discharges to tight time-frames.

The Nursing and Midwifery Council (NMC), the regulator for nurses and midwives whose main purpose is to protect the public, have set standards for the supervision and assessment of students and learners in practice which produces another level of work which is conducted without additional resource to the budgeted ward establishments. Mentors with responsibility and accountability for making the final sign-off in practice must have the equivalent of an hour per student per week allocated during their final period of practice learning. With around 150 students alone undertaking this assessment within EKHUFT annually this represents a significant workload that is also absorbed at ward level.

## **5.6 Professional Judgement**

A component of the Hurst workforce planning tool includes a method of calculating required establishments using professional judgement. The feedback from ward managers on required staffing levels across the 24 hour period was utilised and there was a close correlation between calculated establishments and actual for most wards. However, the calculated establishments using this method were >15% above actual establishment for 9 wards 5 of which were wards with additional capacity.

The 4 wards without additional capacity where professional judgment indicates that higher staffing levels than actual are predicted are surgical, elderly T+O trauma and a respiratory ward.

There are advantages and disadvantages to the different methods and tools used to model staffing levels, and also a view that none of them capture the communication aspects of nursing work (nurse-patient, nurse-family, nurse-doctor, nurse-other healthcare professionals and departments, nurse-other agencies). Different systems applied to the same care environment can produce different results, and so combining two or more methods is recommended to improve reliability and validity

## **5.7 Ratio of patients per registered nurse**

The RCN reported in 2009 that the average NHS hospital ward had a ratio of 7.9 patients per registered nurse during the daytime and where the ratio was higher than 9.3 patients per registered nurse care was compromised on most shifts.

In 2012 the RCN, in recognition that skill mix and staffing levels on older people's wards is often below that on general wards, recommended that for older people' wards there should be at least one registered nurse on duty for 7 patients.

Numbers of registered nurses per patient was evaluated on each adult ward on 3 separate days during January, on the morning shift, and an average value calculated. The range of registered nurses per bed across the wards was 4.5 to 10.9.

Four wards had average ratios of more than 9.0 and two of these were elderly frailty wards. All these wards achieved at least 74% clinically effective time within the rota demonstrating roster effectiveness, but all were associated with one of the following:



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sickness rate of 8.6%, a 50:50 skill mix, 33.3% staff with working restriction, or 111% occupancy.

## 5.8 Harm free care

Harm free care is measured using the NHS Safety Thermometer tool is to identify, through a monthly survey of all adult inpatients, the percentage of patients who receive harm free care. Four areas of harm are currently measured:

5. All grades of pressure ulcers whether acquired in hospital or before admission;
6. All falls whether they occurred in hospital or before admission;
7. Urinary catheter related infections;
8. Venous thromboembolism risk assessment and appropriate prevention.

In March 2013 89.6% of patients received harm free care, with 95.7% patients free from any harm events acquired in hospital.

The 89.6% performance includes harms acquired before admission to hospital and is slightly below the national average and below our 2015 target of 95%.

35 of the 46 wards demonstrated average Harm Free Care (acquired in hospital) for >95% of patients across 2012/13. However, 11 wards demonstrated <95% and this correlated with some maternity leave on 10 out of these 11 wards.

Less correlation was found between Harm Free Care and skill mix. Only four of the wards with Harm Free Care <95% had a skill mix of <55/45.

## 6. E-ROSTERING

An E-Rostering system was purchased by EKHUFT during 2009/10. Implementation of the system commenced in May 2010 and was completed at the end of December 2012 to all 116 units (3394 staff). The main purpose of the system is to maximise the use of the existing resource.

Matrons are responsible, every 4 weeks, for signing off all rosters for their areas of responsibility to ensure that they are safe, effective and fair. These indicators are described as:

**Safety measure:** To ensure that shifts are not allocated to the wrong grade type  
To ensure the optimum balance of registered nurses to health care assistants.  
To ensure that there is always a suitably experienced nurse in charge of each shift.

**Effectiveness measure:** To ensure that unused contracted hours are restricted to rolling over small numbers of hours to the following month to make a whole shift. This is particularly used where 12 hour shifts are worked.

**Fairness measure:** To ensure that staff are working with the permitted number of requests.  
To ensure that the roster meets the ward 'rules' created to ensure the needs of the service are met. For example a ward may require more staff on particular shifts where increased activity is planned.

There are % tolerances for all the above measures which have been agreed as part of the EKHUFT Roster policy and which are included in the management reports that the matrons have access to in the system when authorising the monthly rosters. The management reports provide detailed information about each roster.

**Figure 8:** Analyser Key Performance Indicators – used during production of a roster

Group	Key Performance Indicator	Amber Threshold	Red Threshold
<b>Rostering Effectiveness</b>	Unused Contracted Hours %	1.5%	2.5%
	Over Contracted Hours %	1.5%	2.5%
	Additional Duties (Hours, 4 weekly)	1	22
<b>Staffing Unavailability</b>	Overall Overhead Limit	19%	23%
	Sickness % (Funded for 3%)	2.5%	4%
	Annual Leave Minimum %	11%	
	Annual Leave Maximum %	17%	
	Study Day %	5%	
	Working Day %	3%	
	Special leave %	5%	
	Other % (e.g. supernumerary)	1%	3%
	Overview (total unavailability)	19%	23%
<b>Fairness &amp; Safety</b>	Requested Roster %	15%	25%
	Duties with Warnings %	7.5%	15%
	Shifts without Charge Cover	1	3
<b>Flexible Working</b>	<i>% of staff with some form of flexible working pattern / restriction</i>	<i>No threshold to be set, data to be considered alongside metrics above</i>	

An even more useful indicator than ‘unused contracted hours’ is the ‘% time worked’ indicator, available within the system, which provides another dimension for evaluating the effectiveness of the roster created. It reflects the % time nurses in post spend on clinical duties. Time lost includes annual leave, sick leave, management days, training days and maternity / paternity leave. It does not include vacancies and therefore, because the % allowance within the rosters is 21%, each roster should ideally run at 79% clinically effective.

In April 2012 the ‘unused contracted hours’ indicator, which only provided one element for monitoring through the corporate dashboard, was substituted for ‘roster effectiveness’ to enable monitoring of the effectiveness of the rosters

The average achievement of % time clinically effective for December 2012 across all 46 wards was 70.37%. Only 9 of the 46 wards achieved more than the optimum 75% which demonstrates significant opportunity for improvement. An annual leave planner has already been developed to support ward managers in managing the spread of annual leave and is in use in most wards.

Meeting the 75% clinically effective measure will require effective annual leave planning to ensure it is evenly spread, effective sickness management, training days are allocated fairly, and management time is used effectively. Managers have the ability to adjust how many staff are on annual leave to manage fluctuations but where maternity or adoption leave or jury service leave exists this measure will be difficult to achieve. 31 out of the 46 wards have an element of maternity leave and only 3 of these wards managed >75% clinically effective time on the December 2012 rota.

## 7. ANALYSIS OF SPECIALTIES

### 7.1 Medical wards

WTE per bed averages 1.34 across the eleven wards in line with the average recommended NPOB Hurst level for these wards. Hurst recommended WTE: bed ranges from 1.23 for medical specialty wards to 1.50 for Neurology wards. Only Harvey and Cambridge J & Cambridge K fall below the Hurst level for the specialty.

Skill-mix is below 60:40 in nine of the eleven wards and below 55:45 in three wards, similar to that seen in the previous review and below recommended RCN levels.

All but one medical ward have a separate recurrent bank budget which if converted to actual WTE equates to a total of 7.42 WTE across these wards.

There is a fairly close correlation between the actual ward establishment (adjusted to reflect inclusion of separate bank line), the ward establishment calculated when applying the Hurst model, and the acuity dependency assessment of nursing workload for most wards except Cambridge J. This was the only ward which showed a gap of more than 15% below AUKUH recommended levels which may be due to normal variations of nursing workload or the impact of additional beds at the time of data collection. Application of the Professional Judgement method demonstrated that six wards predicted similar establishments to the actual and five wards predicted a higher required establishment than actual with three wards identifying significantly higher required establishments than actual (Cambridge K 46%, Sandwich Bay 21% and Harvey 13.8% higher).

Of the four wards with additional capacity all had occupancy levels in excess of 100% demonstrating the impact of additional beds.

Only six wards are achieving >75% time clinically effective in the December rota with three wards achieving <70% indicating further room for improvement in managing sickness, ensuring even spread of annual leave and more creative solutions for covering paid maternity leave.

Three of the four wards demonstrating <95% Harm free care (hospital acquired) had either <55:45 skill mix, >9.0 patients per registered nurse, or had >100% occupancy and a significantly lower funded establishment than that determined by professional judgement and acuity dependency.

Ward	Beds Funded	Additional Capacity Division Unfunded	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Harvey ward	19	0	24.76	24.76	28.2	27.3	3.8 %	0.00	77.1 %	19.2 %	98.1	0.03	52:48	1.30	1.44	8.44	23.6	97.10%
Treble ward	18	0	29.32	29.98	28.2	27.0	8.2 %	1.80	63.0 %	34.4 %	99.1	0.14	53:47	1.66	1.50	7.00	24.6	92.00%
Mt McMaster	24	2	27.97	29.04	28.2	29.6	2.0 %	0.00	79.8 %	51.7 %	100.5	0.21	50:50	1.21	1.23	9.50	19.8	95.30%
Invicta	24	0	28.56	29.32	25.4	29.6	1.4 %	0.53	80.2 %	34.4 %	94.4	0.18	57:43	1.22	1.23	8.00	23.5	96.70%
Cambridge J	28	6	32.54	33.47	49.1	34.6	11.0 %	2.17	67.6 %	44.7 %	115.9	0.15	59:41	1.19	1.23	7.07	47.0	90.10%
Cambridge K	26	2	30.64	31.50	35.0	33.2	2.2 %	0.00	76.9 %	30.6 %	102.5	0.27	59:41	1.21	1.28	5.93	24.9	97.10%
Cambridge M	21	8	27.11	27.81	27.1	25.9	1.4 %	0.96	75.1 %	40.6 %	134.9	0.24	60:40	1.32	1.23	7.83	28.3	93.60%
Oxford	14	0	22.11	22.66	25.4	20.8	3.3 %	0.00	73.3 %	33.3 %	83.6	0.12	60:40	1.61	1.49	9.33	20.0	82.10%
Minster Ward	23	0	32.10	32.90	34.5	29.3	4.2 %	1.00	73.9 %	8.1 %	82.6	0.12	56:44	1.43	1.28	5.67	22.6	95.50%
Sandwich Bay	21	0	28.24	28.91	35.0	25.9	0.6 %	3.19	67.4 %	17.1 %	90.5	0.12	58:42	1.37	1.23	5.83	23.8	95.60%
Deal Ward	28	0	35.23	35.65	35.0	34.6	3.6 %	0.00	81.1 %	10.0 %	93.4	0.11	59:41	1.27	1.23	6.89	34.2	96.70%

Additional investment by the UCLTC division was made to fund 15 beds at WHH and 15 beds at QEQM, with a 60:40 skill mix, for winter pressures 2012/13. At QEQM this resource provided additional staff to enable St Augustines, the contingency ward, to function safely. At WHH the additional resource was applied across three wards; Cambridge J, Cambridge M2 and Cambridge L (elderly frailty ward) providing an additional 3 WTE registered nurses and 2 WTE healthcare assistants on each ward.

Funding was drawn down to ward budgets on recruitment of the staff and the December budgeted establishments for these three wards reflect that some of these posts had been recruited to. The table below demonstrates the lower actual baseline establishments pre-winter pressures, the December budgets reflecting a proportion of the additional staff recruited, and the total funded establishments available for winter pressures.

Ward	Pre-winter pressures budgeted establishment	December budgeted establishment	Total funded establishment for winter pressures (until 31.3.13)
Cambridge J	31.54	32.54	36.54
Cambridge M2	25.11	27.11	30.11
Cambridge K	30.94	33.94	35.94

In reality only a proportion of these staff were recruited ahead of winter pressures and some posts were not filled until March 2013. The increased available resource also supported the opening of a further 13 beds on Cambridge M1 which were staff by the Cambridge K ward team putting additional pressure on this ward. This budget was removed at the end of March and the additional staff will be absorbed through natural turnover.

## 7.2 Clinical Decision Units

The variation of WTE per bed across the CDUs reflects the requirement of the funded establishment on both sites to cover 16 higher intensity assessment beds alongside the CDU beds on the ward.

Skill-mix is at or above 60:40 on both wards.

Both wards have a separate bank line, representing an additional 2.64 WTE for the two wards.

There is a close correlation between the actual ward establishment (adjusted to reflect inclusion of separate bank line), the ward establishment calculated when applying the Hurst model, and the Professional Judgement method. There was little correlation with the acuity dependency assessment of nursing workload on both CDUs. .

Both CDUs have additional capacity and occupancy levels are near 100% for QEQM.

Neither CDU achieved >75% time clinically effective time in the December 2012 roster. WHH roster effectiveness was lowest, along with a higher percentage of staff with working restrictions and higher sickness levels than at QEQM.

Ward	Beds Funded	Additional Capacity Division Unfunded	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
CDU WHH	47	4	60.88	62.41	62.7	66.9	7.8 %	3.28	66.9 %	27.0 %	87.1	0.45	65:35	1.32	1.79/1.23	8.71	42.1	98.30%
CDU, QEQM	25	6	42.19	43.30	47.4	39.7	6.3 %	4.60	68.2 %	16.7 %	99.5	0.50	60:40	1.73	1.79/1.23	6.58	31.3	97.90%

### 7.3 Coronary Care

There is variation of WTE per bed and skill-mix which is higher at WHH to support the pPCI service and at KCH where the unit is small and requires a minimum registered nurse presence.

There appears to be a correlation between the establishment calculated when applying the Hurst model to the adjusted establishment (incorporating the separate bank line) for the coronary care units at WHH and QEQM but not for KCH. There is no correlation between acuity dependency and actual establishment in any unit and Professional judgement calculated establishment is close to actual on all three units.

The separate bank line represents a small component of the establishment. Two of the units have additional beds and occupancy is above 100% at KCH.

Sickness levels are low, a high percentage of staff have working restrictions and December rotas show low % time clinically effective within E-Rostering with none achieving >75%.

Ward	Beds Funded	Additional Capacity Division Unfunded	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Taylor KCH	5	2	15.66	15.66	14.1	8.5	3.2 %	1.00	68.4 %	41.2 %	113.5	0.30	92:8	3.13	1.71	3.33	5.8	92.90%
CCU WHH	11	2	33.50	34.04	32.8	32.9	1.7 %	2.00	69.0 %	31.4 %	77.7	0.47	80:20	3.09	2.01	3.00	11.0	96.80%
CCU QEQM	12	0	24.50	24.85	23.7	20.5	1.7 %	2.64	63.9 %	30.8 %	87.6	0.35	71:29	2.07	1.71	3.44	14.4	99.20%

### 7.4 Stroke

The current funded establishments include around 5 WTE thrombolysis nurses for each stroke unit. These nurses have to be available to leave the ward to administer thrombolysis in A+E and provide 1:1 care for the first 24 hours. This is reflected in the skill-mix which is variable but near 60:40. A two week audit identified that 30% of their time was spent away from the ward.

In the absence of a Hurst model specifically for Hyper-acute stroke unit (HASU) two Hurst specialties were applied, High Dependency and Stroke. In applying the Hurst tool 8 beds were included as 'acute beds' using the closest 'fit': High dependency. There is a correlation between the establishment calculated when applying the Hurst model but less correlation when applying the acuity dependency method to the adjusted establishment particularly at WHH.

The London model recommends a staffing ratio of 3.5 WTE per bed for HASUs with a skill mix of 80:20 to enable the delivery of care by one nurse to two patients. The model also recommends a staffing ratio of 1:5 WTE per bed for stroke units with a skill mix of 65:35. Application of this model determines significantly higher

staffing levels than current actual. Factoring in the 30% of time that the stroke thrombolysis nurses spend away from the ward further impacts on the staffing levels available on the ward.

Additional capacity at KCH and QEQM is reflected in occupancy levels above 100%. PAS data shows that Fordwich had an average of 27 patients on the ward at midnight during January 2013 with a total capacity of only 23 beds meaning PAS was frequently not updated.

% time clinically effective time is lowest at WHH although it has fewer staff with working restrictions and % patients with harm free care is also markedly low.

Ward	Specialty	Beds Funded	Additional Capacity Division Unfunded	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	London model	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Kingston	Stroke	22	5	38.46	39.28	36.7	39.0	49.0	7.0 %	0.00	73.2 %	25.0 %	113.0	0.11	62:38	1.78	2.01/1.23	7.70	37.0	95.20%
Richard Stevens Unit	Stroke	24	0	37.58	38.28	40.7	41.5	52.0	1.6 %	3.00	66.5 %	17.1 %	88.8	0.14	58:42	1.59	2.01/1.23	7.86	31.5	91.30%
Fordwich Ward	Stoke	19	4	35.62	36.14	35.0	35.2	44.5	9.1 %	0.00	73.1 %	30.0 %	146.2	0.17	63:37	1.90	2.01/1.23	5.16	34.0	97.60%

## 7.5 HCOOP / frailty

There is close correlation with the Hurst recommendation of 1.4 WTE per bed, using the closest specialty of rehabilitation ward, in all wards. Skill-mix is below 55:45 in one ward. The ratio of Registered Nurses to patients by shift is too high to meet RCN recommendations.

There is some correlation with current adjusted establishments when applying the Hurst model but not with the acuity dependency tool.

All wards have a separate recurrent bank budget which if converted to actual WTE equates to a total of 2.91 WTE across these wards.

All wards have additional capacity and occupancy levels exceed 100% in all wards.

None of the wards achieved >75% clinically effectiveness within the December 2012 rotas.

Ward	Beds Funded	Additional Capacity Division (Unfunded )	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Harbledown	24	3	34.10	34.92	31.6	34.5	8.6 %	1.00	73.9 %	25.8 %	108.2	0.19	52:48	1.45	1.44	10.39	23.2	94.70%
Cambridge L	21	5	33.94	35.17	37.8	30.2	4.4 %	1.00	71.7 %	43.6 %	121.7	0.10	56:44	1.67	1.44	4.59	45.7	96.30%
St Margarets	22	3	27.89	28.75	35.0	27.1	4.9 %	0.60	74.4 %	22.9 %	111.1	0.15	56:44	1.30	1.44	10.94	29.7	99.00%

## 7.6 Surgery

There is variation between the WTE per bed on the Kings wards at the WHH and the Cheerful Sparrows wards at the QEQM. WTE per bed is low on Clarke ward which may reflect the day case component of the service but this is not the case for Kent ward which also has 6 day case trolleys. The skill-mix is near or above 55:45 in all wards.

Most of the wards have a separate bank budget line which if converted to actual WTE equates to a total of 6.48 WTE across these wards.

There is some correlation with current adjusted establishments when applying the Hurst tool except wards with day case trolleys and outpatient activity (Clarke, Kent, Rotary). There is little correlation with current establishments when applying the acuity dependency tool as it does not capture day case or outpatient activity.

The ward with the highest number of additional beds has an occupancy of almost 115% against the funded bed base.

There is variation in % clinical effective time achieved within the December rota with only two wards achieving near or above 75%. Sickness is very high on some of the wards and the % staff with working restrictions exceeds 40% on Kings A2. >95% Harm Free are is achieved on all but one ward. Three wards had >9.0 patients per registered nurse over the assessment period

Ward	Beds Funded	Additional Capacity Division (Unfunded )	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Clarke	36+6	2	41.45	42.75	41.9	53.0	7.9 %	0.80	74.5 %	24.4 %	82.4	0.31	58:42	1.01	0.5/1.39	8.27	27.9	95.20%
Kent	20+6	5	31.38	32.34	37.3	28.3	1.5 %	1.00	79.7 %	10.0 %	88.4	0.24	60:40	1.24	0.46/1.28	6.12	14.2	93.90%
Kings A2	20	0	24.69	24.69	31.1	27.8	5.2 %	0.00	73.3 %	41.7 %	91.6	0.19	54:46	1.23	1.39	7.67	21.2	98.40%
Kings B	27	0	31.57	32.66	37.4	37.5	9.4 %	1.00	63.1 %	11.4 %	91.2	0.19	55:45	1.20	1.39	8.89	32.0	99.60%
Rotary	16	0	32.32	33.41	30.7	22.2	4.8 %	1.00	71.9 %	25.6 %	87.7	0.28	55:45	2.08	1.39	4.89	17.2	98.70%
Cheerful Sp Male	18	9	26.80	27.80	27.3	25.0	7.1 %	2.00	59.2 %	18.5 %	114.9	0.33	57:43	1.54	1.39	8.44	19.3	97.30%
Cheerful Sp Female	20	2	27.28	28.35	27.7	27.8	9.6 %	0.00	68.8 %	32.3 %	97.7	0.33	57:43	1.41	1.39	6.53	24.6	99.10%

## 7.7 Trauma and Orthopaedics

WTE per bed is above the 1.24 Hurst model on most wards except for Seabathing. Skill-mix varies and is above 55:45 on only 4 of the 7 wards. However, T+O wards have dedicated and rostered Therapy support, Monday to Saturday, which is not included in the above.

All wards have a separate bank budget line which if converted to actual WTE equates to a total of 7.66 WTE across these wards

There is some correlation with current adjusted establishments when applying the Hurst, nursing workload and professional judgement tools except for Kings D (incorporating male and female wards) where the calculated establishment using the Professional judgement method is significantly higher than actual. This may be due to the impact of additional beds, geographical location of the two wards, the additional bed capacity linked to occupancy levels of >100% and may be linked to the high sickness level on the ward.

Ward	Beds Funded	Additional Capacity Division (Unfunded)	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Kings D male(1)	21	4	27.18	27.97	55.3	26.0	11.0 %	0.61	70.5 %	25.0 %	87.4	0.15	54:46	1.33	1.24	6.56	24.1	98.60%
Kings D female (2)	14	4	17.98	18.92		17.4	2.6 %	0.00	69.9 %	20.0 %	115.7	0.13	57:43	1.35	1.24	7.78	15.3	96.60%
Kings C1	27	0	32.55	33.80	42.4	33.5	9.2 %	1.00	71.2 %	25.0 %	91.6	0.08	50:50	1.25	1.24	4.85	34.0	92.50%
Kings C2	24	0	33.22	34.34	32.3	29.8	3.2 %	3.60	71.3 %	44.1 %	76.5	0.28	56:44	1.43	1.24	5.44	29.9	99.60%
Bishopstone	24	0	33.94	35.27	36.2	29.8	15.4 %	1.53	70.8 %	48.6 %	98.4	0.05	48:52*	1.46	1.24	4.27	31.1	95.10%
Quex	19	0	23.44	24.44	24.8	23.6	2.6 %	0.80	74.0 %	11.5 %	66.6	0.22	67:33*	1.28	1.24	3.64	14.3	100.00%
Seabathing	26	0	29.95	31.18	31.1	32.2	7.6 %	0.53	65.4 %	13.3 %	87.8	0.10	55:45*	1.19	1.24	6.86	22.4	90.20%

## 7.8 Renal and Haematology/oncology

There is correlation with actual establishments against calculated establishments using Professional judgement and the Hurst models is close for Brabourne ward. Marlowe ward is less well correlated which suggests that the current staffing level is not sufficient.

Skill mix is higher than on general wards reflecting the higher registered nurse ratios required to deliver care for patients requiring haemodialysis (Marlowe) and acute haematology care (Brabourne).

Both wards have a number of staff with working restrictions but achieve acceptable roster effectiveness and have manageable sickness levels.

The acuity dependency tool does not appear to capture the nursing workload within Brabourne and the derived calculated establishment does not correlate with actual establishment,

Ward	Beds Funded	Additional Capacity Division (Unfunded)	Funded Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Marlowe	29+6	4	52.81	56.5	57.8	2.7 %	1.00	74.4 %	26.4 %	95.8	0.23	63:37	1.50	2.56/1.23	4.73	37.7	97.40%
Brabourne	8+6	0	19.35	22.6	19.0	1.4 %	0.50	74.1 %	15.0 %	95.2	0.07	69:31	1.38	2.01/0.48	1.87	8.1	97.90%

## 7.9 Gynaecology

WTE per bed is above Hurst recommended level for Gynaecology. Calculated establishments using the Professional judgement method shows some correlation with actual establishment but there is no correlation with Hurst or measurement of nursing workload. The calculated establishments from both these methods predict lower establishments than actual.



The high number of staff with working restrictions on Kennington, and the high sickness level, may make it difficult to cover shifts which is reflected in the roster efficiency performance.

Ward	Beds Funded	Additional Capacity Division (Unfunded )	Funded Establishment	Full Establishment	Prof judge	Hurst (21% on cost)	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Hurst NPOB	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
Kennington ward	11	4	21.60	21.60	19.2	13.6	15.1 %	0.00	72.4 %	30.4 %	91.2	0.54	55:45	1.96	1.24	5.56	9.5	100.00%
Birchington	15	4	29.71	29.75	24.0	18.6	3.6 %	0.00	79.0 %	11.8 %	93.1	0.47	64:36	1.98	1.24	4.81	11.9	98.20%

## 7.10 Paediatrics

There is no recommended national tool for determining the staffing levels within a children's ward. Professional judgement, the Hurst model and the RCN nursing workload tool were used to enable triangulation in making comparisons as they are the most relevant currently available. However, there is no correlation between the calculated establishment derived using these three methods.

The professional judgement method used an assumption of 85% occupancy and produced a calculated establishment far higher than actual. Current occupancy is around 50%, calculated from in patient numbers at midnight, but this does not reflect the outpatient and ambulatory activity through the wards during the day.

The Hurst model is derived from 76 best practice medical and surgical children's wards which may not reflect any similarity with the needs of patients within Padua and Rainbow wards. This application of this model includes calculation of ward, outpatient and assessment areas as separate 'units' which when added together provide an inflated predicted establishment.

The RCN nursing workload tool sets a minimum ratio of trained staff to child according to age group but this does not recognise the role of the HCA in delivering care to children and does not take account of non direct care givers e.g. play staff, ward clerk, or the delivery of outpatient and ambulatory services within the ward area. However, this provides the closest calculated establishment to actual.

Ward	Beds Funded	Additional Capacity Division (Unfunded )	Funded Establishment	Prof judge	Hurst (21% on cost)	RCN	Sickness % 19/11/12 - 16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Acuity dependency	Harm free care (new harms only) 2012/13
Padua	32	0	36.65	45.3	55.7	38.7	11.1 %	1.00	66.4 %	23.3 %	48.7	0.30	80:20	1.15	38.7	100.00%
Rainbow	24	0	30.59	36.9	47.8	28.2	4.3 %	0.00	71.5 %	20.0 %	45.7	0.37	83:17	1.27	28.2	100.00%

A more detailed review of paediatric staffing to determine appropriate workforce requirements to deliver the emergency pathway for children has included evaluation of the ward areas incorporating a 'hot ambulatory' area and the staffing required for a dedicated assessment area within the EDs to enable all children attending to be

triaged by a paediatric nurse in a child friendly environment, seen by a Paediatrician if appropriate and discharged or transferred to the ward. A joint approach with UCLTC division has been undertaken to determine the staffing requirement for the ED component with the paediatric nurse requirement on each site. This will be finalised when plans for the emergency care pathway for children have been agreed. However, an adjustment to ward establishment will be needed in the short-term to reflect the growth in high dependency component and the outpatient activity which takes place on the ward.

### 7.11 Neonatal Unit

Neonatal services operate from 7 ITU, 4 HDU and 14 special care cots and staffing requirements are reviewed annually as part of the Neonatal network. The Neonatal Network recommend 1:1 nursing in ITU, 1:2 in HDU and 1:4 in special care, with a supernumerary shift leader. Calculations are based on an average occupancy of 80% with 25% uplift for sickness and leave and are the recommended WTE for registered nurses, excluding support staff.

Current establishment is below both the Neonatal Network and BAPM recommended level. EKHUFT average occupancy from January to December 2012 was in line with the average of 80% at 79% but on cost allowance adjustment to 21%, adjusts the requirement to 64.13 WTE against an RN establishment of 57.57 WTE.

The recommended nurse to patient ratio is achieved in the Special Care area but 1:1 nursing in NICU is rarely possible within the current funded establishments and one registered nurse will usually care for an HDU baby as well as an ITU baby.

Ward	Beds Funded	Funded Establishment	BAPM	Network	Sickness % 19/11/12 -16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Skill mix	Ratio patients:RNs	Harm free care (new harms only) 2012/13
Neonatal ITU	7+4+14	62.53	64.00	66.00	6.0 %	2.61	72.4 %	26.8 %	92:8	1.25	97.40%

### 7.12 Critical Care (adult)

A review of critical care staffing was undertaken in February 2013. The critical care team use patient case mix and severity of illness data to guide a flexible approach to nursing workload in applying the current funded establishments to achieve the 'Standards for Nurse Staffing in Critical Care' (BACCN 2009) and RCN recommendation of not less than 1 nurse per level 3 (ITU) patient and 1 nurse per two level 2 (HDU) patients during each shift.

The higher nurses to patient ratio at KCH is required due to the geographically separate ITU and HDU and allows the flexibility to expand the provision of level 3 beds to 6. The majority of admissions to HDU are elective surgical patients, for whom the pressure to avoid cancellation is high, or those stepping down from level 3 care. The challenges imposed by this are the difficulty for the nurse in charge to oversee both units, movement of patients from one area to another with associated cleaning of vacated bed spaces, the high frequency of admissions and discharges, moving and handling issues due to limited staff numbers in each area and the need to nurse some level 2 patients on ITU due to lack of isolation facilities in HDU.

Current establishments are considered appropriate.

Ward	Beds Funded	Funded Establishment	Sickness % 19/11/12 -16/12/12	Maternity leave	E-Rostering effectiveness (% time worked) 19/11/12 - 16/12/12	Staff with Work Restrictions % 19/11/12 - 16/12/12	Bed Occupancy (EXCLUDING Funded Day Case Beds) (%)	Throughput (INCLUDING Funded Day Case Beds)	Skill mix	wte:bed	Ratio patients:RNs	Acuity dependency	Harm free care (new harms only) 2012/13
ITU WHH	9	55.88	2.6 %	0.00	75.3 %	18.3 %	92.1	0.07	85:15	5.8	1.10	37.4	100.00%
ITU QE	8	48.52	2.8 %	1.00	73.3 %	20.4 %	84.3	0.14	91:9	5.67	1.01	37.7	97.50%
ITU KCH	6	40.61	2.2 %	0.61	67.4 %	30.0 %	102.7	0.08	92:8	6.62	1.28	28.5	92.70%

## 8. CONCLUSIONS

1. Turnover of registered nurses and midwives from 2011 to 2012 indicates relative stability in the nursing workforce.
2. Sickness rates have reduced since 2011 for ward staff but rates remain high for healthcare assistants and reflects the high physical and emotional demands of ward work. Additional beds place a higher workload on existing staff and this is associated with higher rates of sickness on most of these wards.
3. Maternity leave is higher on wards than for the overall nursing and midwifery workforce and there is no allowance in the funded establishment to cover this.
4. Most ward budgets (35 out of the 46 reviewed) also include a separate bank line which ward managers do not appear to be empowered to use as part of their funded establishment and many have misinterpreted it's original intention. There has not been a significant conversion of this to funded establishment since the previous staffing review.
5. NHS-P bank fill rates have fallen over the last six months. The unfilled shifts mean that movement of staff between departments is used to fill gaps which does put some wards under considerable additional pressure.
6. The use of temporary staff through NHS-Professionals and agency has fallen over the last three years with the implementation of greater controls and monitoring on use. There has not been an associated rise in expenditure on overtime over the same period so demonstrating cost reduction set against greater productivity and more efficient use of the staffing resource.
7. The application of modelling methods has identified that:
  - a. Most wards are near or above calculated establishments using the Hurst (2012) method
  - b. Most wards have establishments higher than the nursing workload acuity dependency tool suggests is appropriate, however, the monthly snapshot may not effectively capture average workload
  - c. The Professional Judgement method showed the closest correlation between calculated establishments and actual for most wards. However, the calculated establishments using this method were >15% above actual establishment for 9 wards 5 of which were wards with additional capacity.
8. Previous investment is reflected in a higher skill-mix since 2007/08 in all specialties but there has been an average reduction since 2008/09 in surgery from 60/40 to 57/43 and in T+O from 57/43 to 55/45.  
Most T+O wards have a rota of dedicated therapy support which contributes to the work of the team so the lower nursing skill mix is manageable. In addition, T+O were early implementers of the associate practitioner role and four trainees have completed and are working as band 4s which contributes to the slight skill mix reduction.
9. Previous investment is reflected in higher nurse per bed ratios since 2008/09 in most specialties except surgery, although it is in line with Hurst (2012).
10. The range of patients per registered nurse on duty across the wards was found to be 4.5 to 10.9 at the time of a three day snapshot survey. Four wards had average ratios of more than 9.0 and two of these were elderly frailty wards. This exceeds the maximum of 9 for adult wards and 7 for older people's wards recommended by the RCN. All four of these wards achieved

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at least 74% clinically effective time within the rota demonstrating roster effectiveness, but all were associated with one of the following: sickness rate of 8.6%, a 50:50 skill mix, 33.3% staff with working restriction, or high occupancy levels.

11. The average achievement of % time clinically effective for December 2012 across all 46 wards was 70.37% against a target of 75%. Only 9 of the 46 wards achieved more than the optimum 75% which demonstrates significant opportunity for improvement. 31 out of the 46 wards have an element of maternity leave and only 3 of these wards managed >75% clinically effective time on the December 2012 rota.
12. Most wards demonstrated average Harm Free Care (acquired in hospital) for >95% patients across 2012/13. Where this was not achieved there was no clear link to a lower skill mix but there was an association with lower roster effectiveness and most of these wards had an element of maternity leave.

## **9. RECOMMENDATIONS**

The following priorities have been identified and will require further discussions to enable professional judgement to inform the areas where an impact can be made within existing resources and those which will require some additional investment.

### **1. Maximise the use of existing resources**

- Review the structure of ward budgets to determine the risks and benefits of the separate bank budget with each ward manager. Consideration should be given to recruiting to this component of the ward establishment to mitigate risks such as maternity leave and long term sickness which may impact across a number of wards.
- Review the % time worked (clinically effective) indicator to exclude the impact of maternity leave and consider whether it remains the most effective indicator as a measure of effective rostering practice for inclusion in the balanced scorecard.
- Centralised rostering support for wards with low roster effectiveness (those with roster effectiveness < 75% to enable good quality rostering
- Recommend a maximum level for working restrictions to reduce the impact of flexible working on individual ward teams and introduce movement of staff to other wards where flexible working request may be able to be accommodated.
- Plan the deployment of the Associate Practitioners on completion of Foundation degree in order to optimise the impact of well trained support roles

### **2. Improve clinical leadership**

- Refocus of the Matron /Senior Matron role on quality to provide senior clinical leadership to ward teams and ensure that patient flow and bed management issues are dealt with by the site-based capacity & flow teams.
- Increase the amount of supervisory time for ward managers to enable them to perform their supervisory role more effectively to ensure the delivery of a safe and effective service that exceeds the expectations of patients and the public.
- Enable all ward managers to undertake the clinical leadership programme to develop key skills and competences within the Shared Purpose Framework incorporating peer support and challenge, observations of care, emotional touch points with patients and developing their ability to develop a workplace culture that improves quality.

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- Consider administrative support for ward managers (ward assistant) to support E-Rostering, annual and study leave planning and auditing to increase the time ward managers have to talk with patients and families, plan and co-ordinate care across the ward, monitor the quality of care provided, and to work-alongside students, newly qualified nurses and other staff as effective role models. .
  - Review the skill mix out of hours to ensure the availability of experienced band 6 nurses, across wards, to provide clinical leadership and advice, technical clinical skills (intravenous cannulation and drug administration when workload is high), escalation of concerns to senior doctors, and nurse-initiation of discharges at weekends.
- 3. Improve alignment of staffing requirements to demand**
- Establish robust planning for escalation beds, involving the professional judgement of the ward manager, to include a systematic approach to staffing to ensure a dedicated funded establishment is available and recruited to ahead of winter pressures.
  - Review the acuity dependency nursing workload assessment tool to develop explicit criteria to enable consistency in evaluation of nursing workload.
  - Review the efficacy of 12 hour shifts given the increasing work-load, acuity and dependency of patients, and relatively high levels of sickness in some ward areas.
  - Agree most appropriate method for back-filling for maternity leave on a flexible basis
  - Monitor impact of activity and workload on staffing resources more frequently by incorporating the RCN recommended key performance indicators into the ward quality dashboards
- 4. Consider specific areas for investment**
- The following areas will be considered for investment alongside optimising current use of resources
- Medical wards to reflect current acuity and dependency of patients with specific attention to Harvey ward (KCH), Cambridge J and Cambridge K (WHH)
  - Stroke units to reflect current acuity and dependency of hyper-acute stroke patients and band 6 nurses spending 30% time away from the ward.
  - Healthcare of Older People/frailty wards to address the high ratio of patients to Registered Nurses per shift and acuity /dependency of patients
  - Gradual move towards 60:40 skill mix in all adult wards to ensure ratio of Registered Nurses to patients is at RCN recommended level for specific ward environments and with specific attention on surgical and T&O wards
  - Paediatric ward establishments to support the additional high dependency and outpatient activity, and to deliver more ambulatory care pathways for children.
  - NICU to reflect BAPM guidelines and enable 1:1 nursing in the special care area of NICU
- 5. Evaluate the size of wards to develop a model of best practice that achieves high level productivity, safety, cost effectiveness and meets service needs**
- Consider reconfiguration of wards and possible co-location of wards to provide the best quality care and patient and staff experience.
  - Review and re-evaluate any changes in ward establishment configuration and agree a sign off process for making changes in budgeted establishments and skill-mix.



