

The role of hospital design in the recruitment, retention and performance of NHS nurses in England

PricewaterhouseCoopers LLP

in association with the University of Sheffield
and Queen Margaret University College, Edinburgh

FULL REPORT

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Abstract

Key words: Hospital design, nursing staff, recruitment, retention, performance.

This research was commissioned by the Commission for Architecture and the Built Environment (CABE) and carried out by PricewaterhouseCoopers LLP (PwC) in association with the University of Sheffield and Queen Margaret University College, Edinburgh between September 2003 and April 2004.

The primary aim of the research was to explore whether hospital design has an influence on the recruitment, retention and performance of NHS nurses in England, and to further examine which aspects of design matter to nursing staff.

The research methodology involved a mix of qualitative focus groups with nurses throughout England and a large scale quantitative survey of Directors of Nursing.

Overall the research found that design *does* matter to nurses, and has the greatest influence on their workplace performance, followed by recruitment and then retention.

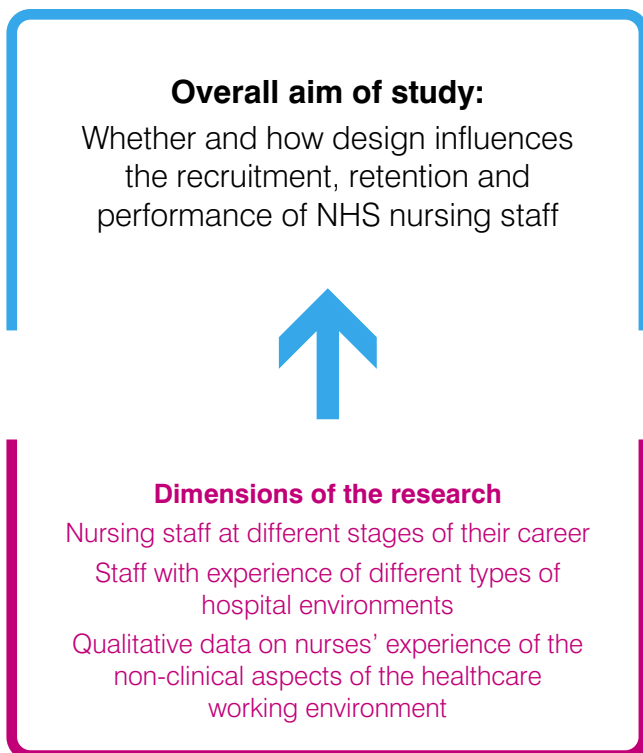
In terms of specific aspects of design, the internal environment and the functionality of the environment appears to matter most. Examples of specific aspects which are important to nurses include building and unit layout, space in which to work, environmental control and interior design such as lighting and use of colour.



INTRODUCTION

1.1 The Commission for Architecture and the Built Environment (CABE), following on from previous work already undertaken, commissioned a research team led by PricewaterhouseCoopers LLP (PwC) to undertake a study examining how hospital design impacts on the recruitment, retention and performance of NHS nursing staff in England. The aims of the study are outlined in Figure 1.1 below.

Figure 1.1: Overall aim of the study



1.2 In order to address this aim, three main strands of work were undertaken:

- > A **review of existing literature** on the links between design, recruitment, retention and performance
- > A series of **qualitative focus groups** with nursing staff held throughout England
- > A major **quantitative survey** of 479 Directors and Assistant Directors of Nursing throughout England

1.3 This report outlines the main findings from the study and is structured as follows:

- > **Section 2 – Methodology**
- > **Section 3 – Literature review**
- > **Section 4 – Recruitment**
- > **Section 5 – Retention**
- > **Section 6 – Performance**
- > **Section 7 – Conclusions**

1.4 In addition, the following appendices are contained in a separate Appendices document:

- > **Appendix 1 – Literature review**
- > **Appendix 2 – Bibliography**
- > **Appendix 3 – Focus groups**
- > **Appendix 4 – Director of Nursing survey**



METHODOLOGY

Introduction

2.1 The study involved three main strands of work, namely a literature review, qualitative focus groups and a quantitative survey.

Figure 2.1: Overview of methodology



Literature review

2.2 In total over 100 separate articles were examined as part of the literature review.

2.3 The approach covered a wide range of studies including those which were not specifically focused on hospital design or recruitment factors. Overall the literature review concentrated on:

Recruitment, retention and performance

- > patterns of recruitment and retention
- > interrelationships between recruitment, retention and morale
- > benefits of a participatory management style

Design

- > places and spaces
- > lighting
- > environmental control
- > aural environment
- > olfactory environment
- > distractions

2.4 The results of the literature review are summarised in the next section of this report and the full review is provided in Appendix 1. A bibliography for the literature review is provided in Appendix 2.

Qualitative focus groups

2.5 The majority of qualitative focus group work was concentrated on front-line nursing staff. In conjunction with the Royal College of Nursing (RCN), six focus groups (at a range of urban and semi-rural locations) were held throughout England between October 2003 and April 2004. A summary of the key topics explored in the focus groups is provided in the box below.

Focus group topics (a more detailed discussion is contained in Appendix 3)

- > **Development of a list of design factors which matter to nurses**
- > **How does the workplace environment help or hinder your working life**
- > **Which aspects of the environment have an effect on recruitment of nurses**
- > **Which aspects of the environment have an influence on how long you work in a particular unit or hospital**

2.6 The focus groups sought to provide initial information for development of the Director of Nursing survey, as well as to provide the qualitative information available as part of the project. In total, 58 nursing staff participated in the focus groups as demonstrated in Table 2.1. Individual focus group write-ups are presented in Appendix 3.

Table 2.1: Summary of focus group participants

Location	No. of Participants	Percent %
London A	8	14
London B	7	12
Birmingham	8	14
Bristol	15	26
Leeds	10	17
Bury St. Edmunds	10	17
Total	58	100

2.7 As part of the focus groups we asked each participant to provide information on themselves, to assess the extent to which participants as a group were in line with the national nursing profile. The figures show that older nurses and male nurses are over-represented in the sample of focus group participants.

2.8 The majority of focus group participants had been working as nurses for over 10 years. In addition, the majority of participants (87%) at the time of the focus groups were working full-time with 13% working part-time. No participants were working solely as a casual or agency nurse, although a number of focus group participants highlighted that they also undertook agency or bank work¹.

¹ It was agreed with the Steering Group that a specific focus group with agency staff would not be feasible due to the requirement (as experienced by the researchers in the past) of having to pay participants from this sub-group of nurses and, more importantly, overcoming the practicalities of identifying agency nurses from a range of agencies throughout England, and arranging for them to be present at an agreed central location for a focus group.

² Source: Nursing and Midwifery Council statistics as at 31 March 2002.

Table 2.2: Profile of focus group participants

Age	Focus Groups (n=58) %	National (NMC ²) %
20-29	7	11
30-39	18	31
40-49	39	32
50+	36	26
Total	100	100

Gender	Focus Groups (n=58) %	National (NMC ²) %
Male	25	11
Female	75	89
Total	100	100

Role	Focus Groups (n=58) %	National (NMC ²) %
Staff nurse	89	98
Senior Manager	4	2
Not Answered	7	–
Total	100	100

Table 2.3: Profile of focus group participants

Number of hospitals	Focus Groups (n=58) %
1	17
2 – 3	19
4 – 5	25
Over 5	39
Total	100

Number of years nursing	Focus Groups (n=58) %
1 – 3	10
4 – 5	2
5 – 10	7
Over 10	81
Total	100

2.9 The clinical areas represented by focus group participants are shown in the box below.

Clinical areas represented at focus groups

- > A&E
- > Administration
- > Burns
- > Cardiac
- > Clinical pharmacology
- > Community care
- > Critical care (ICU/HDU)
- > Dermatology
- > Elderly specific
- > Endocrinology
- > ENT
- > Gastrointestinal
- > General medical
- > General surgery
- > Gynaecology
- > Haematology
- > Infectious diseases
- > Mental health
- > Midwifery/delivery
- > Neurosurgery/neurology
- > Oncology
- > Operating theatres
- > Orthopaedics/trauma
- > Outpatient clinics
- > Paediatrics/neonatal
- > Palliative care
- > Rehabilitation
- > Telephone consultation
- > Transplantation
- > Urology

Quantitative survey

2.10 A survey of Directors and Assistant Directors of Nursing was conducted in February/March 2004. A total of 479 Directors and Assistant/Deputy Directors of Nursing at NHS Trusts were sent the postal survey which was then followed up by telephone, and where necessary email. The detailed results of the survey (including the survey tool and detailed analysis tables) are shown in Appendix 4.

Survey topics

- > Profile information of the respondent (9 questions)
- > Overall perception of the difficulty of recruitment, retention and performance of nursing staff in the Trust, as well as how often nurses are consulted about hospital design (4 questions)
- > A series of questions on which hospital design factors matter in the recruitment, retention and performance of nurses, asking respondents to rate them on a five-point scale from 'very important' to 'very unimportant'. The following broad categories were used:
 - > external space (5 sub-questions)
 - > internal environment (14 sub-questions)
 - > functionality (3 sub-questions)
 - > civic value (2 sub-questions)
 - > staff facilities (7 sub-questions)
- > Information was also requested on examples of what the respondent considered good and poorly designed hospitals.

2.11 A total of 265 responses (55%) was received, representing a very satisfactory response rate for a postal survey.

Table 2.4: Summary of Director of Nursing survey responses

Survey	Frequency	Percent %
Surveys distributed	479	100
Declined participation or unable to be contacted	214	45
Total responses	265	55

2.12 The response rate of 265 returns means that at the 95% confidence interval we can say that the high-level results reflect the views of all Directors and Deputy Directors of Nursing, \pm 4.2%. The profile of respondents is provided in Table 2.5 opposite.

2.13 Given the large number of questions asked in the survey, statistical analysis was performed primarily at two levels, ensuring a balanced and useable amount of outcome information:

- > descriptive and percentage analysis of individual answers to survey questions
- > cross-tabulations between background information and perceptions of the importance of individual factors on nurse recruitment, retention and performance

2.14 Overall (where information was provided), 225 (85%) of respondents were Directors of Nursing and 24 (9%) were Deputy Directors of Nursing. The majority (76%) were female and had been in post for 1 to 3 years (48%). As demonstrated in Table 2.5, 45% of respondents worked in acute Trusts and 59% were aged between 40 and 49.

2.15 The conjecture that nurses are mobile as a workforce is given greater credence from the survey which found the majority of respondents have worked for 4 or 5 Trusts with 5% of respondents working for over 10 Trusts in their NHS working career.

2.16 Respondents to the Director of Nursing survey primarily work in large Trusts (with over 700 staff) as reflected in Table 2.5. It should be noted that the number of staff question relates to Trusts, and individual hospitals within a Trust will have a smaller number of staff.

Table 2.5: Profile of survey respondents

Trust Type	Frequency	Percent %
Acute	118	45
Primary Care	84	32
Mental Health	39	15
Ambulance	1	0
Specialist / Other	23	8
Total	265	100

Age Band of respondent	Frequency	Percent %
Under 30	0	0
30 – 39	31	12
40 – 49	157	59
50 – 59	70	26
60 and over	1	0
Not stated	6	3
Total	265	100

Length of time in post	Frequency	Percent %
< 1 year	62	23
1-3 years	126	48
4-5 years	36	14
>5 years	37	14
Unsure	4	1
Total	265	100

Number of Trusts in which respondents have worked	Frequency	Percent %
1 – 3	85	32
4 – 5	89	34
6 – 7	53	20
8 – 9	19	7
10 or more	12	5
Not stated	7	2
Total	265	100

Number of Staff working in respondent's Trust	Frequency	Percent %
< 100	3	1
100 – 299	30	11
300 – 499	41	15
500 – 699	47	18
> 700	134	51
Unsure	10	4
Total	249	100

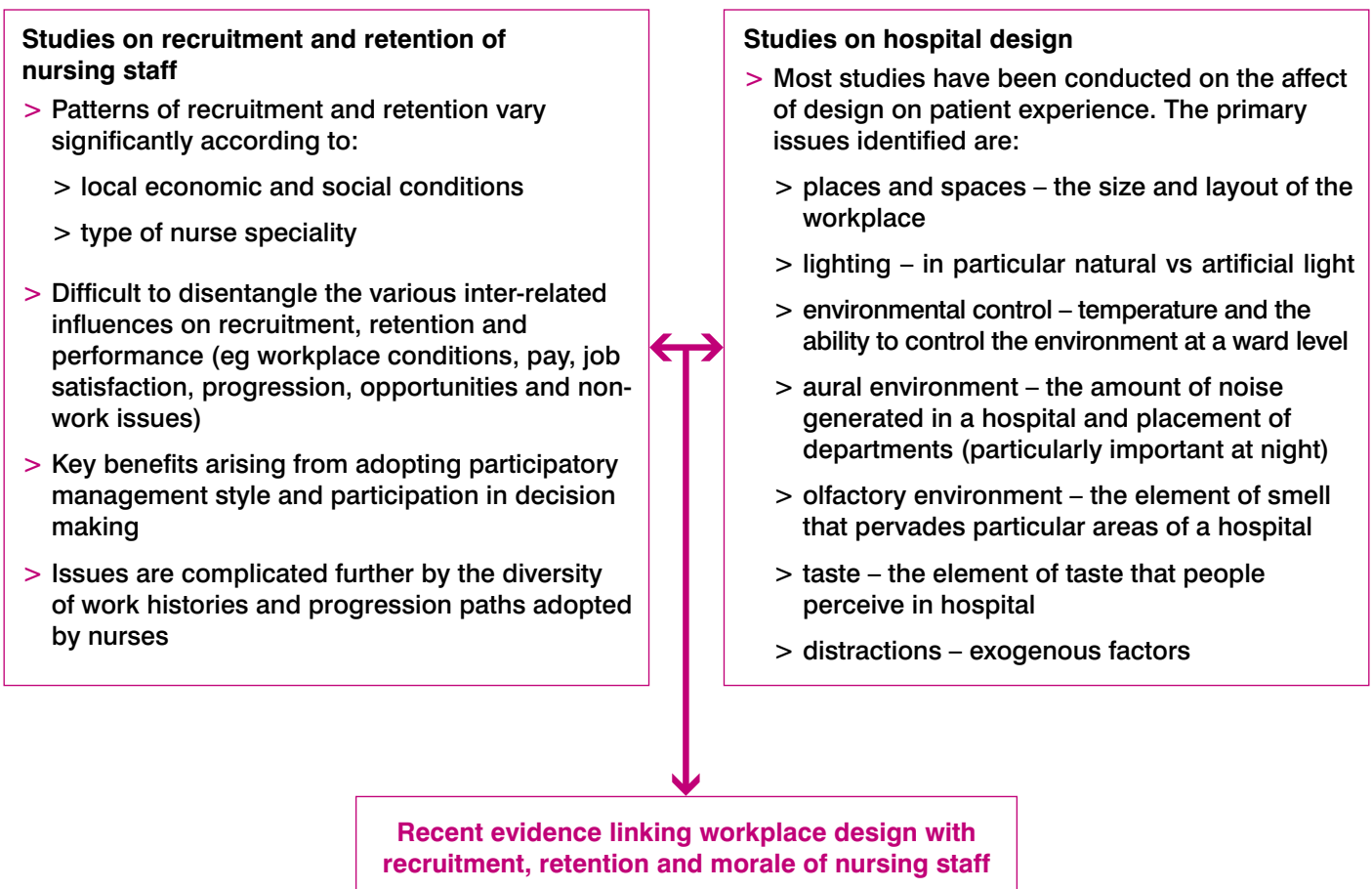


LITERATURE REVIEW

Introduction

3.1 This section of the report presents a summary of the literature on recruitment, retention, performance and hospital design. Further detailed information is given in Appendix 1. A summary of the key strands of literature which are reviewed is shown in Figure 3.1 below.

Figure 3.1: High-level summary of the literature review



Recruitment, retention and performance

Patterns of recruitment and retention

3.2 Nurses have often worked in a variety of settings, across a range of providers. It can therefore follow that their mobility and employability means they are able to change their location or work role with relative ease, moving elsewhere in the NHS, or to the independent sector. Therefore, the issues which induce staff to either leave or relocate are of vital importance to individual Trusts. However the complex interaction of pay, job satisfaction, career prospects and non-work issues means that there is no single solution to retaining and motivating nursing staff (see for example Blegen, 1993 or Evans, 1995)

3.3 From the literature review it has been identified that there are at least five process indicators which can be used to highlight trends and variations in nurse staffing difficulties. These are vacancy rates, staff turnover rates, the extent of use of temporary staff, absence rates, and the level of overtime/excess hours working. Identifying indicators of the outcome of these difficulties, in terms of the impact on patient care, is a more complex challenge, and relates to the overall challenge of measuring and assessing health outcomes.

3.4 Other factors which could be considered include indicators related to care outcomes (ie where these are related to the possible results of a staffing shortfall/skills shortages). There are relatively few studies examining nurse staffing shortages and the associated indicators. The studies that have been undertaken tend to be “one off”, often using primary data, and they usually focus on organisation-level shortages rather than those at system level (see for example Hartz et al, 1989; James et al, 1990 or Needleman et al, 2001).

3.5 Buchan and Seccombe (2003), in a review of the UK nursing labour market, found that over 20,000 nurses are leaving the workforce annually. The proportion of nurses over 55 increased from 9% to 15% between 1991 and 2001. Between 1999 and 2002 the number of managers and healthcare assistants grew by 33% and 46% respectively, whilst the number of nurses grew by only 12%. This highlights that although the overall vacancy rate for registered nurses appears to be improving, there are significant underlying issues which still need to be addressed.

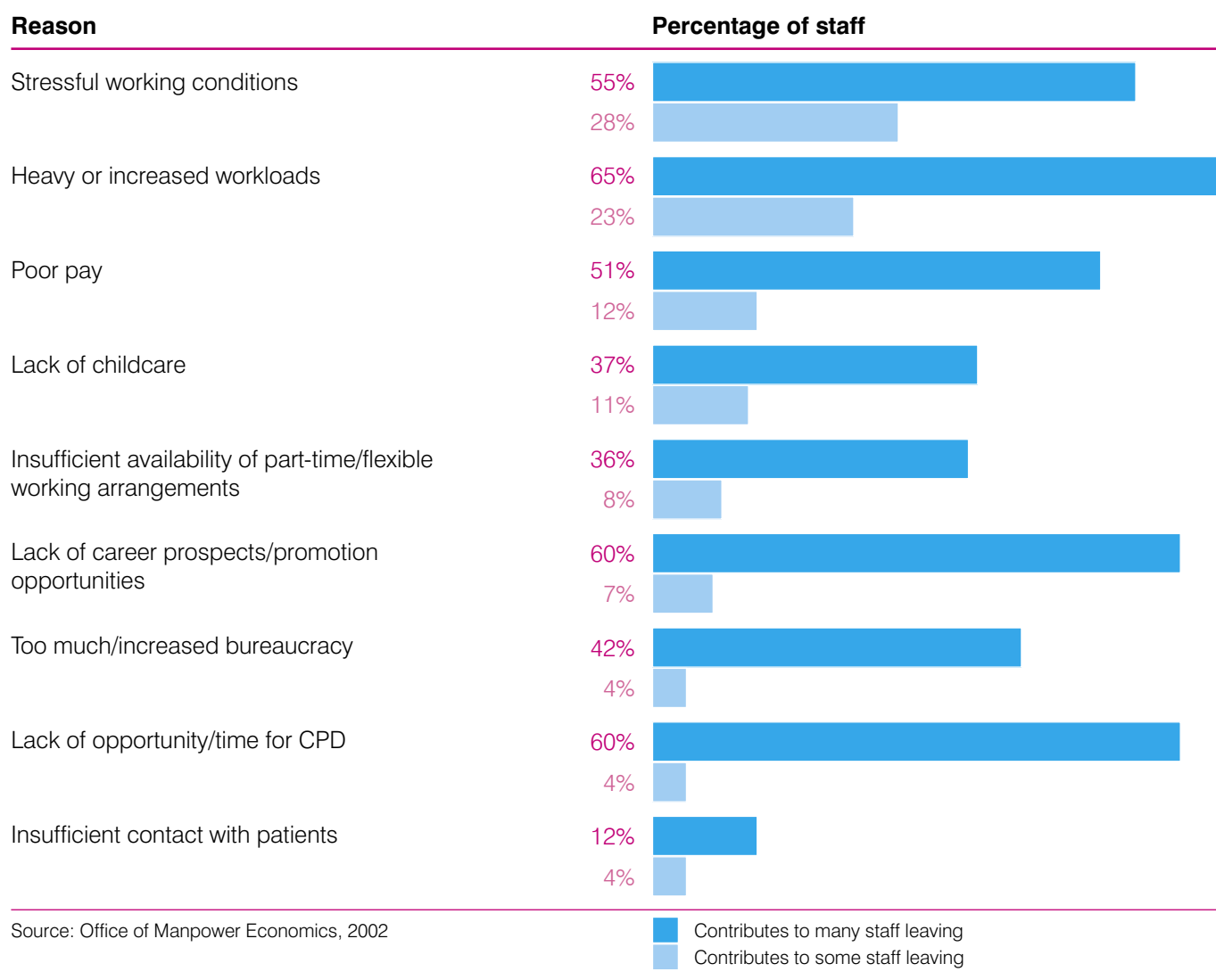
3.6 The shortfall in nursing staff varies by specialism as well as by region, with the South East and London areas experiencing the highest vacancy rates. Nursing and Midwifery Council (NMC) statistics indicate that for the year ended 31 March 2002, 49% of new entrants (15,064) to the nursing register were from outside the UK and European Union. In addition, the number of nurses leaving to work outside the UK continues to rise.

Influences on recruitment, retention and performance

3.7 The effect of workplace design on nursing staff performance, recruitment or retention has not received any significant discussion in the studies found as part of the research.

3.8 It is interesting to note that the Office of Manpower Economics has found a range of reasons why Trusts are experiencing nursing staff leaving the profession and these are shown in Figure 3.2 below. Workload is quoted as being the most common reason for people leaving hospitals.

Figure 3.2: Issues contributing to staff leaving Trusts, for Great Britain: total nursing staff



3.9 There has also been some recognition of the importance of the physical work environment to NHS staff satisfaction. One key element of the NHS HR strategy in England is “Improving Working Lives” (IWL, Department of Health). This requires all NHS Trusts to work towards accreditation across a range of employment practice criteria. The focus in IWL is to improve retention of staff in the NHS by supporting staff involvement, and by providing a more flexible and positive work experience. One of the criteria in accreditation, is “high levels of satisfaction with security, facilities, accommodation and catering”.

3.10 It is important to use an evidence-based approach to identify which flexible employment practices and pay and non-pay incentives are effective in specific labour market conditions, and for specific groups of workers. Research indicates that nurses are attracted to, and retained at, their work because of the opportunities to care for people, to develop professionally, to gain autonomy and to participate in decision making, whilst being fairly rewarded (Blegen, 1993 & Evans, 1987).

Benefits of a participatory management style

3.11 Many of the factors related to nursing staff satisfaction have been examined in US “magnet” hospitals, (for example Aiken & Havens, 1999). There is a growing evidence base to demonstrate that nurses are more likely to be attracted to, remain in, and be more productive in hospitals where they have greater involvement in decision making, and where there is a supportive working environment. One of the main findings of these studies has been to highlight the need for bundles of interventions to improve nurse recruitment, retention and performance, rather than relying on single strategies..

Hospital design

Introduction

3.12 There has been a large number of studies into the affect of the workplace on employees. However the existing literature has mainly focused on office workers. Within the healthcare setting, there has been much work completed on the effect of the environment on patients (for example Lawson and Phiri, 2003), yet little attention has been given to the effect that the hospital environment has on staff.

3.13 Findings indicate that patients are sensitive to and articulate about their architectural environment. They are able to discriminate between poor and good environments and demonstrate what they like and dislike about them. Patients appear to make significantly better progress in new purpose-designed buildings.

Places & spaces and lighting

3.14 Considerable research has been conducted on the psychological effects of windowless environments and findings indicate windows are more than just a luxury, as lack of contact with the outside world heightens stress and depression (see for example Baird and Bell, 1995). Windows are a source of light, sunshine, information about the weather and generally about what is going on in the world outside, thereby providing an indication of where one is in time and space. Studies have found that patients prefer rooms with a view (Verderber, 1986).

3.15 In the design of hospitals the constant needs of patients is for clear orientation, connection with nature, connection with people, appropriate scale and positive symbolic meaning, and these are all essential for the healing process. Two types of connection are highly valued: that with people and that with nature. Connection with people involves a continuum from community to privacy, and this is enhanced by provision of communal and private spaces, which allow transition between these extremes (see for example Kaplan & Kaplan, 1989).

3.16 Nursing has always been aware of human individuality, yet one element of individuality does not seem to have gained widespread recognition, that of personal space. The major findings of one piece of research indicated that preferred distances in the hospital were smaller than in the home and that in both settings the family member was placed closest to the self silhouette, followed by a doctor, nurse and stranger respectively (see for example Geden and Begeman, 1981).

Environmental control

3.17 Control of the environment has also been shown to be important and refers to a person's real or perceived ability to determine what to do, to affect their situations and to determine what others do to them (Gatchel et al, 1989).

3.18 One cause of frustration is the inability of inpatients to manipulate important aspects of their immediate environment, for example to control their own personal environment, to regulate the airflow and temperature, to turn off the radio or light. Staff may also become dissatisfied with their own inability individually to regulate temperature and fresh air (for example Malkin, 1992).

3.19 As part of environmental control, social interactions within the ward have also been found to be important (Burden, 1998). Psychosocial stress has also been quantified and issues such as spatial layout, privacy, personal control and independence have been found to be particularly important in reducing stress.

Aural environment

3.20 Studies in the aural environment have found that noise levels can have an adverse effect on patients and can enhance perception of pain (see for example Falk and Woods, 1973).

3.21 Lack of sufficient rest and sleep is one of the main causes of stress facing patients in hospitals and the most frequent and important cause is noise (Hurst 1996). It is generally accepted that the need for sleep increases with illness (McCarthy, 1992). Other studies (such as Minckley, 1969) found that increased noise increased patient need for analgesia.

3.22 However, studies have also found that hospital nurses may become accustomed to a certain level of noise (Parrack, 1957) and will not notice sounds that may disturb patients, particularly at night.

Olfactory environment

3.23 Most environments have a particular smell and in hospital environments medicinal smells can bring about a level of anxiety amongst patients. Unpleasant odours are known to increase heart rate and respiration, whereas pleasant fragrances can lower blood pressure and heart rate.

3.24 Of all the senses, smell is the most intimate and elusive, reaching more directly into memory and emotions. Often the olfactory sense is underestimated both as a cause of stress and, when positive, as a therapy or destressant. Nonetheless some people claim that smells are retained more acutely in memory than visual images or sounds. However, what is not in doubt is that smells reach into our emotional life – suggesting, stimulating associations, evoking, frightening as well as arousing (see for example Ballard, 1995).

3.25 Strong odours may stimulate the central nervous system, eliciting changes in body temperature, appetite and arousal. Studies (for example Knasko, 1990) have demonstrated that odours impact on people's health and well-being. This can include tasks, mood, perceived health and perceptions of the environment.

3.26 In terms of design, hospitals have areas of residual bad smells, for example crowded spaces or day rooms where inadequate ventilation has left unpleasant odours. It has been identified that deep plan buildings are even more susceptible to residual smells.

Recent evidence

3.27 CABE's Healthy Hospitals campaign has involved obtaining views from the public about hospital design (see box below).

Comments from the Healthy Hospitals Campaign

91% of respondents left comments

- > **32% prioritised space**
- > **22% talked about light**
- > **16% talked about the need for fresh air**
- > **16% picked cleanliness as an important factor**
- > **12% talked about a warm, friendly atmosphere**
- > **11% wanted to see colour**
- > **10% wanted more gardens**
- > **9% wanted more privacy**
- > **5% wanted more use of technology**
- > **5% were concerned about noise levels**

3.28 Prior to the present research, CABE commissioned a telephone survey of 500 nurses throughout English hospitals to determine nurses' attitudes towards hospital design.

3.29 Headline results of the research relevant for this study were:

- > 22% of nurses surveyed stated that hospital buildings, setting and interiors were very significant in their job selection decision
- > 48% of nurses surveyed agreed strongly that working in a well-designed hospital would help them do their job better
- > significantly, 41% of nurses surveyed disagreed strongly that the design of a hospital makes no difference to staff morale
- > 56% of nurses surveyed strongly agreed that working in a poorly design hospital contributes to increased stress levels

Linking the research with existing conceptual models

3.30 The findings from the research can be framed in terms of the well-established Achieving Excellence in Design Evaluation Toolkit (AEDET) and A Staff Patient Environment Calibration Tool (ASPECT) models. At present the AEDET model is undergoing a review. However, one segment of the AEDET model (the localised issues of the staff and patient environment) has been taken into one section. That is in turn dealt with by a tool designed by the University of Sheffield called ASPECT.

3.31 ASPECT is a staff/patient environment calibration tool devised by University of Sheffield and now generally thought to offer the best chance of relating design issues in healthcare environments to the known research on the impact on staff and patients. It has eight sections which deal with:

- > company
- > privacy and dignity
- > views, nature and outdoors
- > legibility of place
- > comfort and control of the environment
- > appearance
- > facilities
- > staff

3.32 Overall the current research fits well with these models. As shown below, the primary findings of this research can be mapped to both the ASPECT and AEDET models.

Table 3.1: Linking the research with conceptual models

PwC/CABE Research		AEDET	ASPECT
External space	Exterior & public transport	Urban & social integration	
	Landscape design		Nature and outdoors
Internal environment	Entrance and foyer		Legibility of place & appearance
	Layout		Legibility of place
	Signage		Legibility of place
	Interior		Appearance
	Storage	Space	
Functionality	Design of consulting rooms	Use	
	Versatility	Space	
Civic value	Integration of architecture	Urban & social integration	
Facilities	–		Facilities & staff

Conclusions

3.33 Recruitment and retention of nursing staff has taken on greater importance, in particular over the past 10 years. More recently there has been a directed effort to retain staff as well as attract back to the nursing workforce those who have previously left. Healthcare organisations are paying more attention to their recruitment and retention policies, and are seeking to differentiate themselves from the competition to attract and keep nursing staff.

3.34 The indicators used to monitor recruitment and retention vary. When taken with the increased use of agency and bank staff, the measures show that, whilst objectives to attract staff back to the nursing profession are succeeding, there remain issues with the number of available nursing staff in some geographic areas as well as in some specific sub-specialties.

3.35 Whilst there has been much work completed on examining the influence of the workplace on office staff, less has been done looking at the effect that the healthcare environment has on the staff working within it. Most notably, as part of a previous research project, CABE sought to determine whether the workplace environment was an influencing factor on nursing staff. The result, whilst behind that of issues such as pay and responsibility, was that the workplace environment does influence nursing staff and can have an influence on an individual's decision on where they work.

3.36 Research on design in hospitals which has been completed, focussing on patients, indicates that light, environmental control, space and building lay-out are some of the more important design factors affecting patient outcomes.



4

RECRUITMENT

Overview

4.1 This section presents the main findings in relation to the issues surrounding the recruitment of nursing staff.

4.2 Recruitment is the cornerstone of attracting staff to the organisation. Attracting the right person to the right job will help ensure that high quality patient care is delivered.

4.3 As part of the Director of Nursing survey, we found that 84% of respondents had significant or slight recruitment problems, with 22% having significant problems with recruiting staff.

4.4 Overall, 39% of respondents rated external space as very important to nurses, and 37% rated the internal environment as very important to recruitment.

4.5 Within these broad areas, a number of specific factors were important, including secure staff parking (65%), family-friendly facilities (63%), the ability to observe patients (62%) and work space in wards and patient areas (57%).

Table 4.2 and the subsequent paragraphs describe the design issues affecting recruitment.

Table 4.1: Perceived problems in the recruitment of nurses

Perception of problem	Percent %
Significant	22
Slight	62
None	14
Not sure	2
Total	100

Source: PwC/CABE survey of Directors of Nursing (n=265)

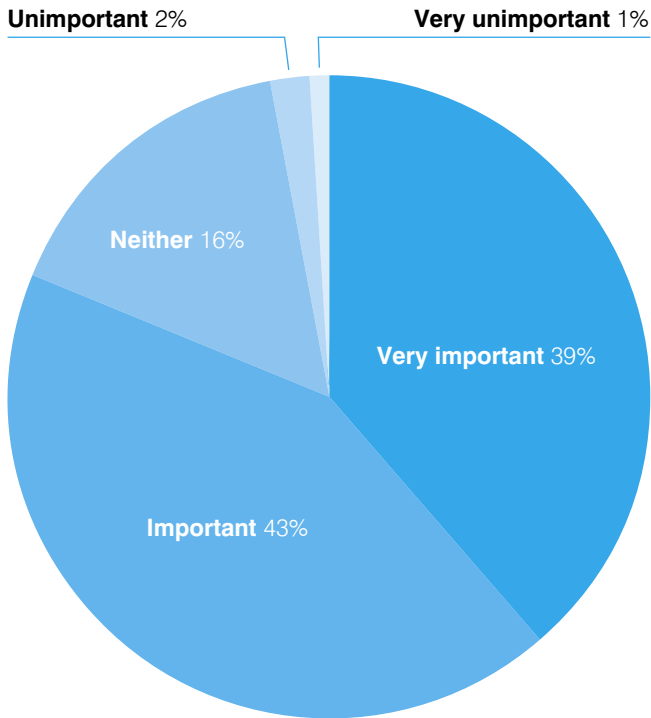
Table 4.2: Hospital design issues affecting recruitment

Percentage	Very Important %	Important %	Neither %	Unimportant %	Very Unimportant %	Total %
External space	39	43	16	2	1	100
Internal environment	37	44	16	2	0	100
Functionality	28	48	22	2	0	100
Civic value	8	27	50	12	3	100
Staff facilities	34	47	17	2	0	100
Total	34	44	19	3	0	100

Source: PwC/CABE survey of Directors of Nursing (n=265) NB where figures do not total exactly 100%, this is due to rounding.

External space

Figure 4.1: Importance of external space to nursing staff as part of their recruitment



NB where figures do not total exactly 100%, this is due to rounding.

4.6 Although recruitment is conditioned by many factors, largely outside of the hospital's control, Directors of Nursing told us that one of the major design factors affecting recruitment was external space (39% very important). This is similar to the focus group results where nurses told us that the appearance and welcoming nature of hospitals in the recruitment stage was important.

A hospital that looks modern and clean will attract staff. If you have a dingy looking concrete structure, that will turn you off working there.

Source: PwC/CABE focus groups with nurses – Bury

4.7 First impressions of a hospital matter to nurses. An attractive outside space (gardens and landscaping) was one aspect of a hospital's design that would attract nursing staff. This was especially relevant where the outside space allowed staff to sit and walk, as well as enable patients to go outside as part of their rehabilitation. It was, however, acknowledged that this is not always possible.

If you went for an interview at a nice hospital set in landscaped grounds, with state of the art equipment and a great layout, you would want to work there.

Source: PwC/CABE focus groups with nurses – Birmingham

4.8 Hospital location was listed as one of the major factors affecting recruitment, as was the availability of regular public transport and staff parking, both close to or at the main entrance to the hospital. It was acknowledged that in some areas hospitals were placed on the only available land. However, where space was not so difficult to source, staff stated that parking was one of their major considerations. This was particularly important for staff working at multiple sites.

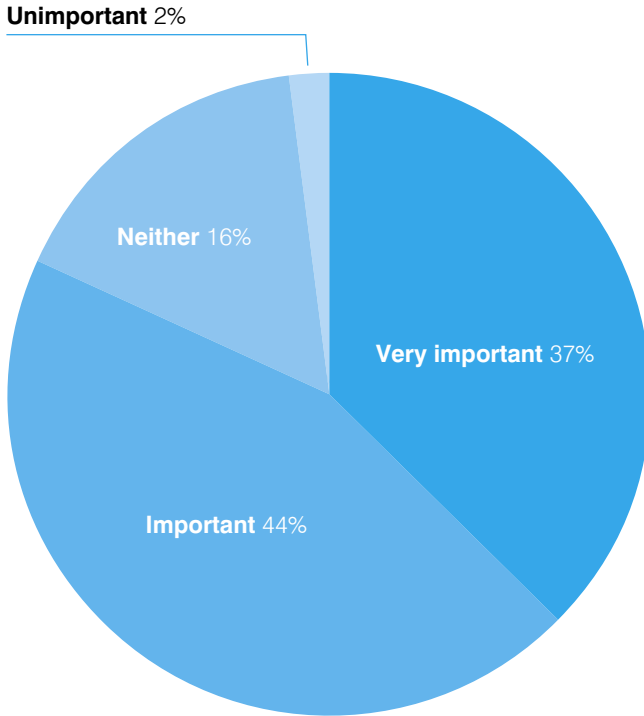
Knowing that you can park close to work is very helpful.

Source: PwC/CABE focus groups with nurses – Bristol

Internal environment

4.9 As part of the survey, 81% of respondents indicated that the internal environment was important to nurses as part of their recruitment.

Figure 4.2: Importance of the internal environment to nurses as part of their recruitment



NB where figures do not total exactly 100%, this is due to rounding.

4.10 37% of Directors of Nursing rated the internal environment as very important. This is consistent with the focus group results in relation to the importance of such issues as space and storage in hospital units.

You get an impression when you walk in – for example, if it looks scruffy this may reflect the management style.

Source: PwC/CABE focus groups with nurses – Leeds

4.11 Teaching areas for nursing staff, not only in formal teaching centres, were highly valued by some nurses. Access to computers, continuing education and a medical library or the internet was viewed as important for continuing professional development. Some nurses thought there was scope for sharing of facilities with medical staff.

We quite often find that the medics have teaching areas, teaching centres, but the physios and the nurses are crammed in where they can.

Source: PwC/CABE focus groups with nurses – London

4.12 The smell of the hospital was specifically mentioned in relation to the recruitment of nurses. In particular, some nurses highlighted that bad smells in a hospital would put them off applying for or accepting a job there.

4.13 To a lesser extent, the colour scheme of hospitals was seen as important by nurses as part of their recruitment. Schemes which were obviously drab, or in need of significant maintenance, were said by nurses to put them off working in some hospitals.

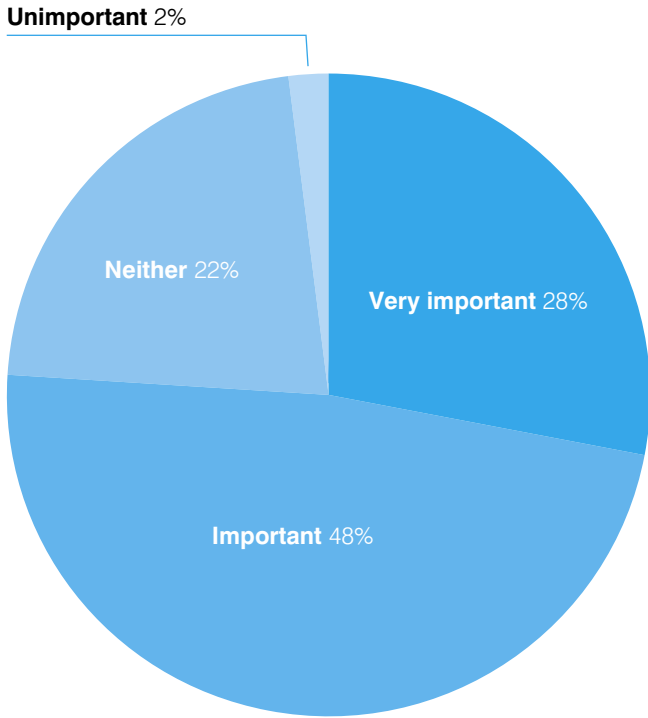
When people come into one of the areas which I manage, they comment that they don't think it looks like a clinical area. This is a bonus.

Source: PwC/CABE focus groups with nurses – Bristol

Functionality

4.14 76% of respondents to the Director of Nursing survey indicated that functionality was important to nurses as part of the recruitment process.

Figure 4.3: Importance of functionality to nurses as part of their recruitment

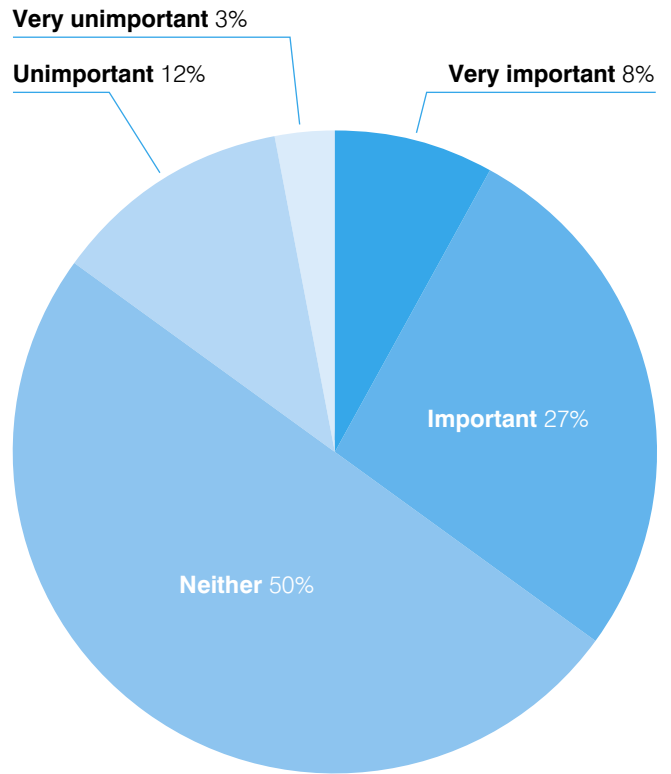


4.15 In the focus groups, functionality was not mentioned specifically as a major influence on nurse recruitment. This could be because it is difficult to comprehensively evaluate at an interview stage how functional a particular unit or ward is.

Civic value

4.16 Civic value seemed to be of greater importance to nurses as part of their recruitment than those responding to the Director of Nursing survey, with 50% of survey respondents rating civic value as neither important or unimportant.

Figure 4.4: Importance of civic value to nurses as part of their recruitment

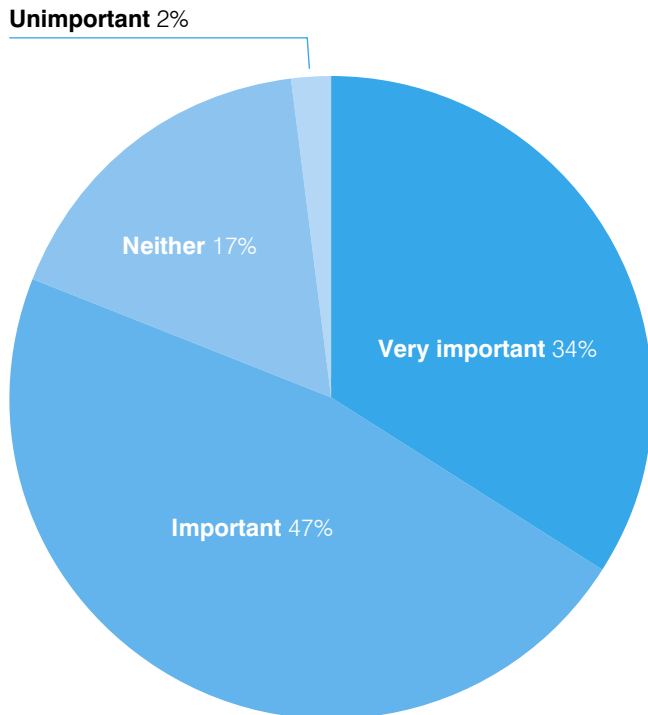


4.17 In the focus groups, nurses regarded the reputation of a hospital as a major consideration for nursing staff when deciding where to work, although it was widely acknowledged that this did not always directly relate to building design. However, the civic value of specialist hospitals in particular was seen to be partly related to building design, and it was felt the reputation of a hospital was often enhanced by the building design.

Staff facilities

4.18 Staff facilities were important to nurses as part of their recruitment and this was reflected in both the survey responses as well as the focus groups.

Figure 4.5: Importance of staff facilities to nurses as part of their recruitment



We are very quick in fighting for our patients, yet we sometimes tend to ignore our own needs as staff.

Source: PwC/CABE focus groups with nurses – Leeds

4.19 Accommodation for staff was a factor for nurses in deciding where to work. It was highlighted that many Trusts have converted their nursing quarters to office or other uses and, in some high-rent areas, nurses stated that a hospital offering reasonable accommodation for a reasonable price would be attractive to them.

4.20 Family-friendly facilities which have been incorporated into the hospital design (such as a crèche, bank and social facilities) were given as examples of the types of positive features which would be attractive to nursing staff. However it was widely acknowledged that these are the exception in hospitals rather than the norm.

I know myself that, if I went into a hospital and saw an open, friendly nursery, that would be one factor that would encourage me to apply there.

Source: PwC/CABE focus groups with nurses – London



RETENTION

Overview

5.1 Retention is concerned with keeping a person in an organisation, and sometimes within the healthcare setting it can mean keeping a person working on a particular unit, rather than losing them to elsewhere in the same hospital or Trust.

5.2 As part of the survey, we found that 63% of Directors of Nursing believe that they have significant or slight problems in the retention of nursing staff.

You will leave within six months if you clash with personalities you're working with, and then the building will not be a consideration.

Source: PwC/CABE focus groups with nurses – Birmingham

5.3 In general, nursing staff found it rather difficult to link hospital design and their retention at work. The primary factors affecting their retention were management attitudes, achieving positive patient outcomes and having positive relationships with their colleagues.

Table 5.1: Perceived problems in the retention of nurses

Perception of problem	Percent %
Significant	12
Slight	51
None	34
Not sure	2
Total	100

Source: PwC/CABE survey of Directors of Nursing (n=265)

NB where figures do not total exactly 100%, this is due to rounding.

You stay with the hope of better to come. We're always being promised environment improvements but they never materialise.

Source: PwC/CABE focus groups with nurses – Bury

5.4 Overall, external space (35%), the internal environment (35%) and staff facilities (34%) rated almost equally at the retention stage as very important. However, functionality (27%) rated somewhat lower in importance according to Directors of Nursing. This is consistent with the results from the focus groups where nurses said that management and personality issues were more important in their retention at a hospital than the design.

It is difficult to say whether high turnover is due to the environment – however on a ward with lots of donations there is a noticeable difference in the environment and this may be more attractive to staff.

Source: PwC/CABE focus groups with nurses – Leeds

Table 5.2: Hospital design issues affecting retention

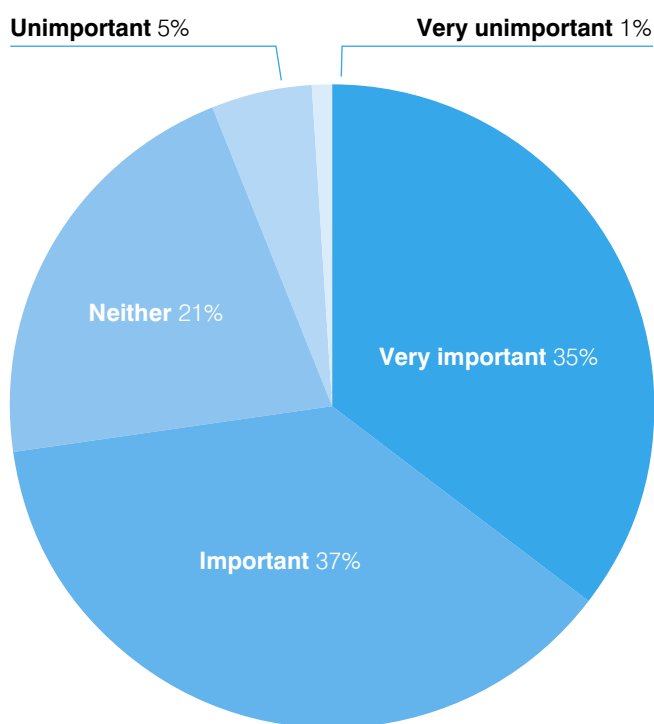
Percentage	Very Important %	Important %	Neither %	Unimportant %	Very Unimportant %	Total %
External space	35	37	21	5	1	100
Internal environment	35	44	17	4	0	100
Functionality	27	47	22	3	0	100
Civic value	7	24	50	15	4	100
Staff facilities	34	44	16	4	1	100
Total	32	42	20	5	1	100

Source: PwC/CABE survey of Directors of Nursing (n=265) NB where figures do not total exactly 100%, this is due to rounding.

External space

5.5 As part of the survey, 35% of respondents indicated that external space was very important in retaining nursing staff with only 6% indicating that it was unimportant or very unimportant.

Figure 5.1: Importance of the external space in the retention of nurses



NB where figures do not total exactly 100%, this is due to rounding.

5.6 Location was given by nurses as one of the main influencing factors in how long they stayed in a particular hospital, although it was acknowledged that this may be out of the hospital designer's control. Access to sufficient parking or good public transport (into the hospital grounds) was also given as an important factor by nurses during the focus groups. 67% of Directors of Nursing stated that secure parking was very important in retaining nurses.

5.7 Public spaces which encouraged interaction and communication were highlighted by nurses as being an influencing factor on retention. Some thought that low-rise hospitals were better in this regard than high-rise ones. Nurses discussed the concept of the 'village atmosphere' in which nurses felt part of the bigger corporate body rather than just a unit within the body. Nurses thought that shared areas such as the staff canteen, a welcoming entrance and shops were key to making this a success.

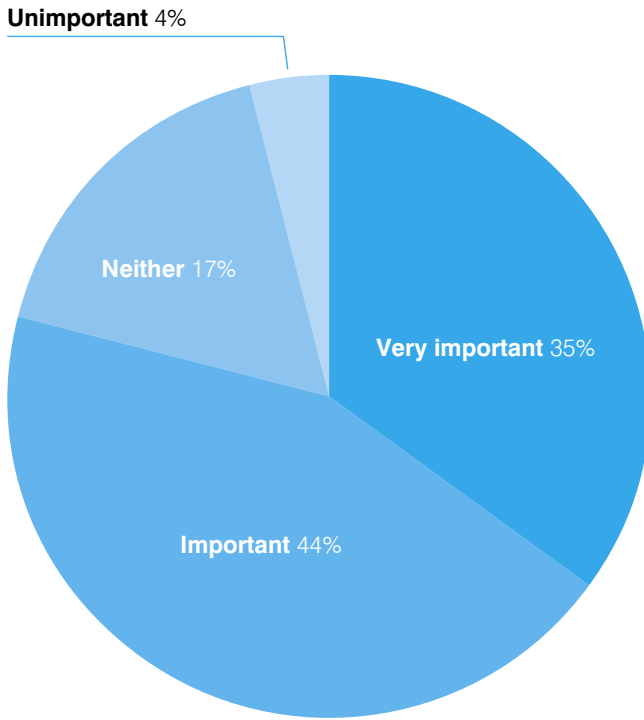
The only communal space is in the lift. It's not very communal.

Source: PwC/CABE focus groups with nurses – London

Internal environment

5.8 Overall 35% of respondents to the survey indicated that the internal environment was very important in retaining nursing staff. This was also reflected in the focus groups.

Figure 5.2: Importance of the internal environment in the retention of nursing staff



5.9 Constant change in the health service, and continual alterations to buildings and reallocation of areas to different uses, were all mentioned as factors which would encourage staff to leave a particular unit.

They (the nurses) will leave if they are moved into smaller and smaller space. They will just simply move to the hospital down the road.

Source: PwC/CABE focus groups with nurses – Birmingham

5.10 The ability to control the immediate environment such as ventilation was cited as one example of an important design feature affecting retention. Units which were too warm or too cold were not seen as conducive to long-term retention. Some nurses even went as far as saying that the ability to control the local environment in which they worked could have an impact on the sickness levels of staff.

The ward which has been done up can make a difference to the nurses – it's the same place but a new look can make a difference to morale.

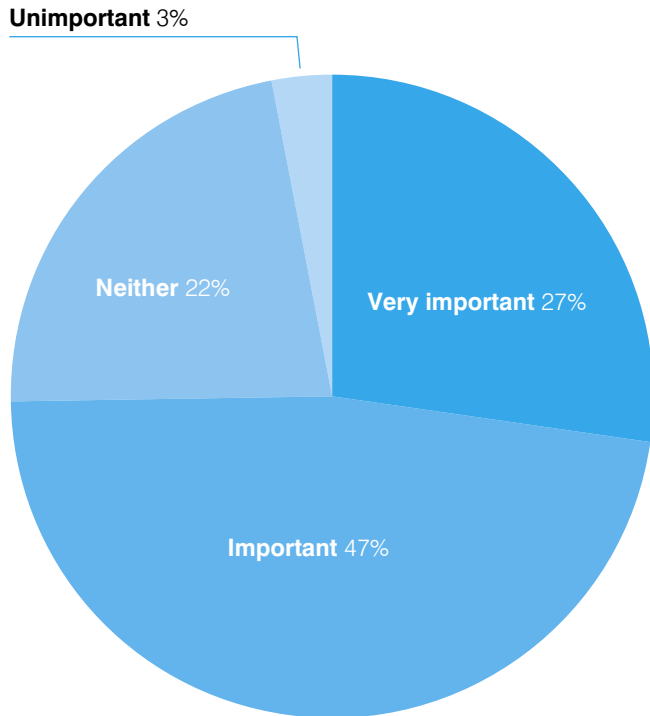
Source: PwC/CABE focus groups with nurses – Bury

5.11 Specific examples of design issues which, although individually would not have made a nurse leave a job, could combine to influence a decision about where to work included: inappropriate setting of oxygen outlets, doors which were too small to easily push beds through, too little space in which to work and not enough electrical plugs for equipment.

Functionality

5.12 The functionality of the area in which they are working is important to nurses in their retention.

Figure 5.3: Importance of functionality in the retention of nursing staff



NB where figures do not total exactly 100%, this is due to rounding.

5.13 A major factor in retention was working in an area which was being used for the purpose for which it was designed. Nursing staff were highly critical of situations in which an area was built for one particular purpose but then used for another, inappropriately. 64% of Directors of Nursing stated that the ability to observe patients was very important.

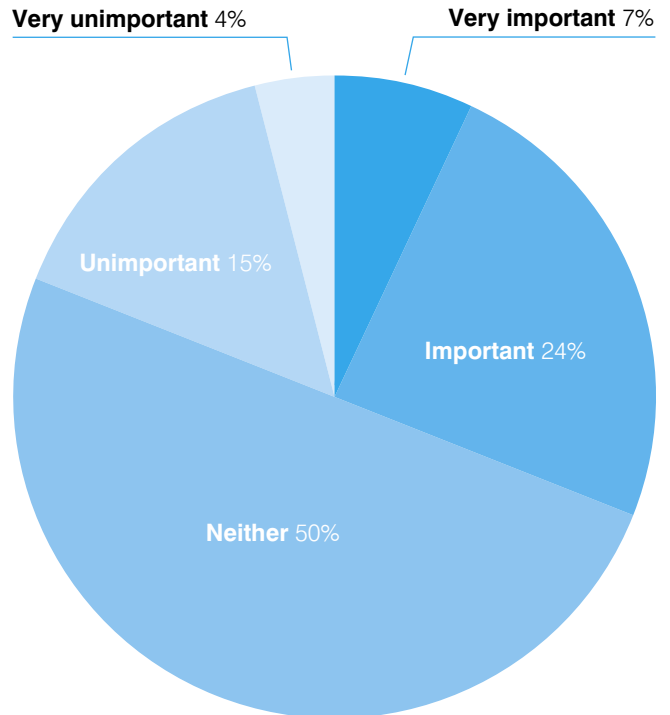
I have been to two different hospitals – one where there is nothing but corridors and a mish-mash of things added on and staff morale is low. There is another hospital close by which is well laid out and nicely designed and staff morale is much better.

Source: PwC/CABE focus groups with nurses – Bristol

Civic value

5.14 Civic value rated somewhat lower with the respondents to the Director of Nursing survey in terms of its impact on retention and did not rate highly with nurses as part of focus groups in terms of their retention.

Figure 5.4: Importance of civic value in the retention of nursing staff



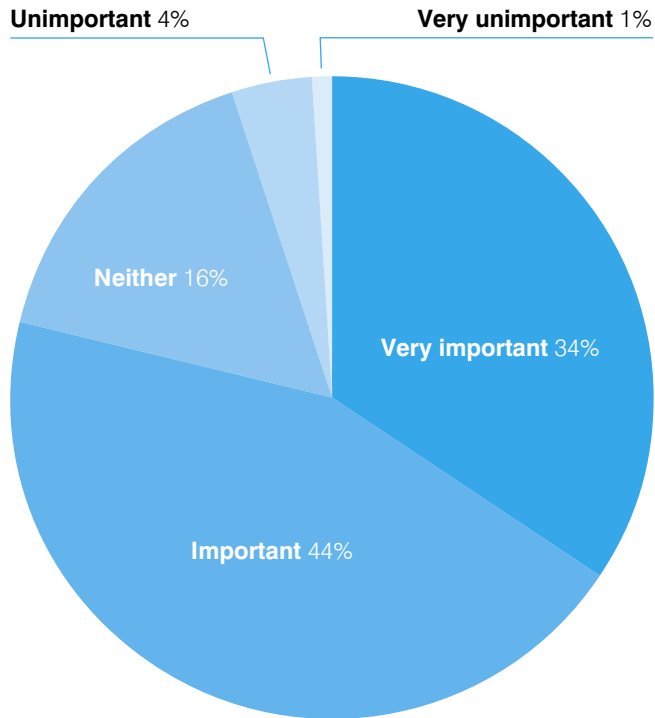
It can be embarrassing sending people from a nice ward to one which isn't as good or is older and hasn't been done up.

Source: PwC/CABE focus groups with nurses – Bury

Staff facilities

5.15 34% of respondents to the Director of Nursing survey indicated that staff facilities are very important in the retention of nurses.

Figure 5.5: Importance of staff facilities in the retention of nursing staff



NB where figures do not total exactly 100%, this is due to rounding.

5.16 The specific aspects of hospital design that are important in terms of retention are those aspects that raise community spirit, and facilities such as banks and crèches. Security, which was visible, was also cited as important in the retention of nurses. Nurses said that where they felt safe, they would be more likely to stay.



PERFORMANCE

Overview

6.1 Results from the research suggest that hospital design has the greatest effect on nursing performance when compared to recruitment and retention.

6.2 As part of the Director of Nursing survey we were told that 84% of Directors of Nursing experienced significant or slight problems in the performance of nursing staff.

6.3 The internal environment rated highest amongst Directors of Nursing (53% very important), with functionality rating second highest at 46%.

6.4 Design was seen by nurses as having an effect on how management work with staff. Whilst it was stated that design may reflect the culture of management, nurses were quick to acknowledge that the management style could also be influenced or constrained by the design of an individual workspace.

Table 6.2 and the subsequent paragraphs describe the design issues affecting performance.

If design means that only one person at a time can go for tea then that will happen – the design can affect how management operate a ward/unit and may discourage team nursing.

Source: PwC/CABE focus groups with nurses – Bury

Table 6.1: Perceived problems in the performance of nurses

Perception of problem	Percent %
Significant	11
Slight	73
None	13
Not sure	3
Total	100

Source: PwC/CABE survey of Directors of Nursing (n=265)

Table 6.2: Hospital design features affecting performance

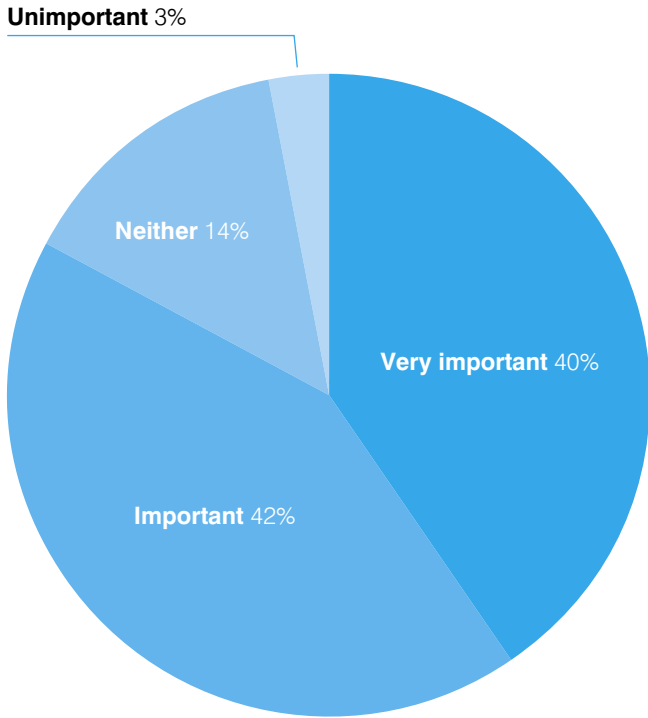
Percentage	Very Important %	Important %	Neither %	Unimportant %	Very Unimportant %	Total %
External space	40	42	14	3	0	100
Internal environment	53	39	6	1	0	100
Functionality	46	46	8	1	0	100
Civic value	12	39	38	10	2	100
Staff facilities	31	50	16	2	0	100
Total	43	43	12	2	0	100

Source: PwC/CABE survey of Directors of Nursing (n=265) NB where figures do not total exactly 100%, this is due to rounding.

External space

6.5 Overall, in terms of performance, external space was seen as being important to nurses by those responding to the Director of Nursing survey.

Figure 6.1: Importance of external space in the performance of nursing staff



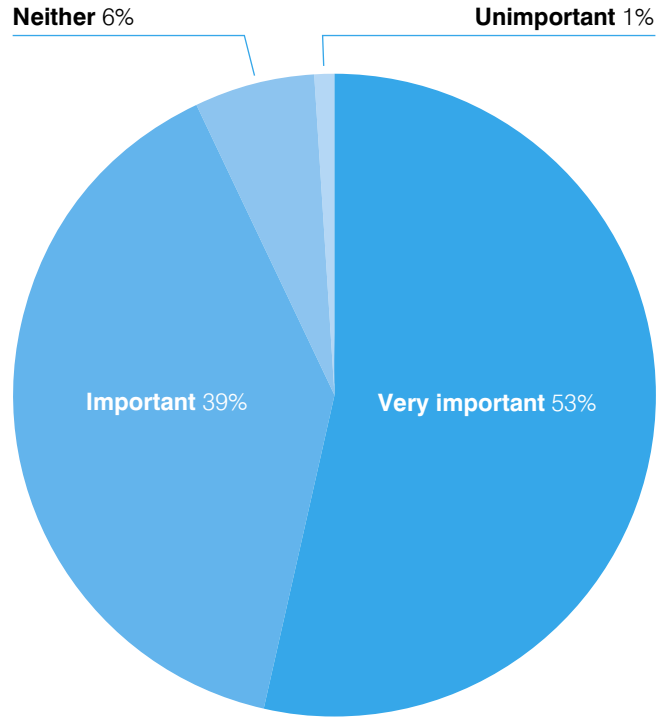
NB where figures do not total exactly 100%, this is due to rounding.

6.6 However, in terms of the focus groups external space did not rate highly with nurses with regards to their performance. This is not surprising given that the nurses in focus groups tended to equate their performance with how they dealt with patients in a hospital.

Internal environment

6.7 The internal environment was one of the highest rated aspects of design affecting the performance of nursing staff from those responding to the survey.

Figure 6.2: Importance of the internal environment on the performance of nursing staff



NB where figures do not total exactly 100%, this is due to rounding.

6.8 Natural light is very important for staff as well as patients. Constant exposure to artificial light, in particular fluorescent tubing lights, was commonly mentioned as one of the most draining aspects of working indoors.

Natural light is so important when you are working. It is so much more restful on your eyes, it makes it easier to read notes and other patient information.

Source: PwC/CABE focus groups with nurses – London

6.9 The ability to control the immediate environment rather than being linked to the hospital air-conditioning system was important to staff, and especially important to patients. Nurses frequently highlighted the need for fresh air (rather than air-conditioning) and the ability to adjust temperature to the needs of the individuals on the ward.

It makes you happier to be working in a nice environment, pleasant view, sufficient daylight and the possibility of opening a window for fresh air.

Source: PwC/CABE focus groups with nurses – Bristol

6.10 Fixtures and fittings, and their quality and function, were cited by nurses as being important to their performance. Many nurses highlighted what they considered were cost cutting measures which resulted in inferior quality fittings, such as door frames and locks (especially important to the mental health nurses), taps that could only be turned on and off by hand thus resulting in cross-infection, rails which children could climb on, or sinks and rubbish bins which were not big enough or sited frequently enough to promote good infection control.

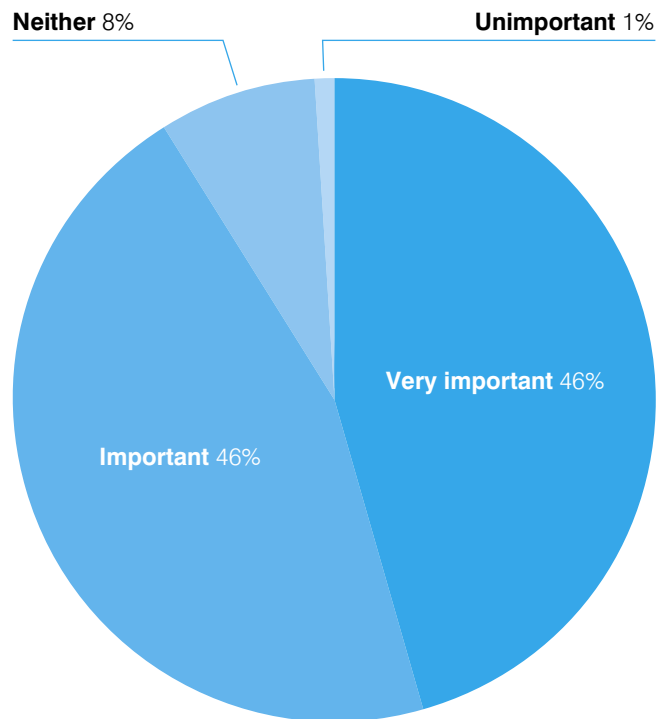
There is a brand new purpose built site that I'm aware of. They haven't taken into consideration that psychiatric patients do things that other patient's don't. This means that the whole place is falling apart, windows are falling out and door frames can be kicked in.

Source: PwC/CABE focus groups with nurses – Birmingham

Functionality

6.11 Functionality rated highest amongst those responding to the Director of Nursing survey in terms of those aspects of design having an impact on the performance of nursing staff, with over 90% of respondents indicating that functionality is either very important or important.

Figure 6.3: Importance of functionality on the performance of nursing staff



NB where figures do not total exactly 100%, this is due to rounding.

6.12 Having sufficient, flexible working space was listed as the most important factor for nurses to do their job effectively. Of particular importance was the use of space and layout so that nurses could see and observe patients as well as get around and perform procedures on them. However nurses were of the opinion that nursing stations were given less thought than patient areas. There was some difference of opinion over whether centralised nurse stations or a number of smaller stations on larger wards were more practical and conducive to better nursing performance and hence better patient care.

The environment can reduce violence and abuse against staff. The way hospitals are built should reduce noise. It is at night-time that most problems occur and patients are trying to sleep.

Source: PwC/CABE focus groups with nurses – Bury

6.13 Of the design factors that are most important to nurses in the performance of their work, 84% of respondents rated the ability to observe patients as very important.

6.14 Nurses believe that space that fulfills the purpose for which it was built, will lead to a positive impact on patient recovery and outcomes. Nurses were keen to give examples of areas where they had found space being used inappropriately. One nurse, from the viewpoint of when a relative was a patient, gave the example of their relative being treated in a room that was also being used to store equipment such as intravenous IV-fluid and drug stands, as well as being the ward managers office.

The outline and shape of a ward can influence how a group of nurses works – this has an effect on both management style and infection control issues.

Source: PwC/CABE focus groups with nurses – Leeds

6.15 However, it should be noted that space which is overly functional can have the effect of not providing enough flexibility. For example, treatment and consulting rooms which are designed for very specific purposes can, in later times, lead to them being inappropriate for other uses and sitting idle when they could be put to good use. The issues of facility management (ie using spaces appropriately) must be separated from the design issues (ie building rooms that can have a dual purpose).

But what I think architects forget is the function for which the room is being designed, and that is where it goes wrong.

Source: PwC/CABE focus groups with nurses – London

6.16 The layout of space was also listed as an important aspect of performance, with long distances between different areas seen as having a negative impact on nursing performance.

A hospital I worked in was in the shape of a Maltese Cross which meant you never had to walk too far to get anything or speak to a colleague and it was also better in terms of patient observation.

Source: PwC/CABE focus groups with nurses – London

6.17 Building layout was important to nurses, not only because of the distances they had to travel but also for the way that it made patients feel. In some instances nurses felt that ward design encouraged patients to see themselves as sick rather than being a place where they begin to get better.

6.18 Private space was also listed as being important for nurses to perform their job effectively. This not only meant space to speak to patients and relatives in private (thus preserving confidentiality) but also areas in the hospital which were staff only, thus promoting areas where staff would not encounter relatives and be drawn into discussions.

If you want to get patients out of bed, there is a need for each ward to have a TV room – it encourages patients to get mobile more quickly.

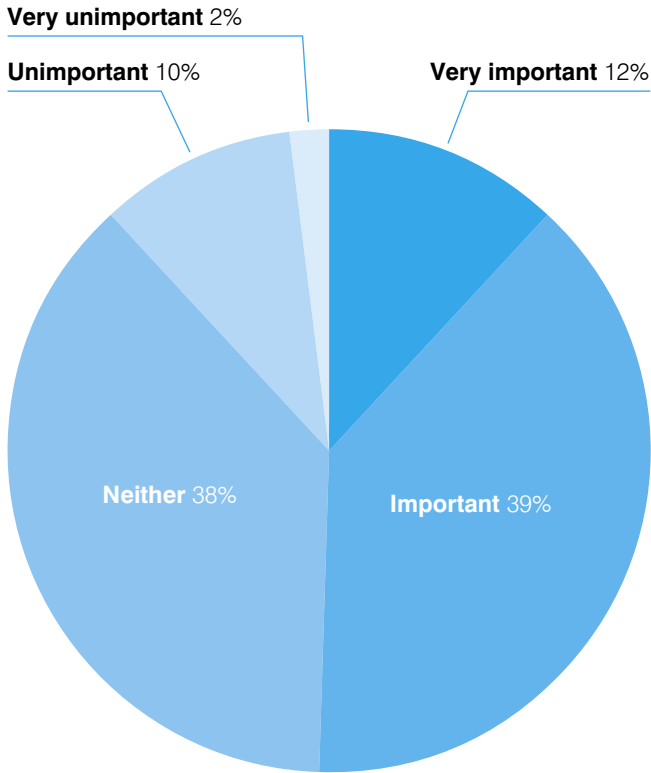
Source: PwC/CABE focus groups with nurses – Bury

6.19 In terms of space, storage space for equipment was cited as being of particular importance, and lifting aids were given frequent mention for the lack of space to store them.

Civic value

6.20 Overall respondents to the Director of Nursing survey indicated that, compared to other design factors, civic value was not greatly important in the performance of nursing staff.

Figure 6.4: Importance of civic value in the performance of nursing staff

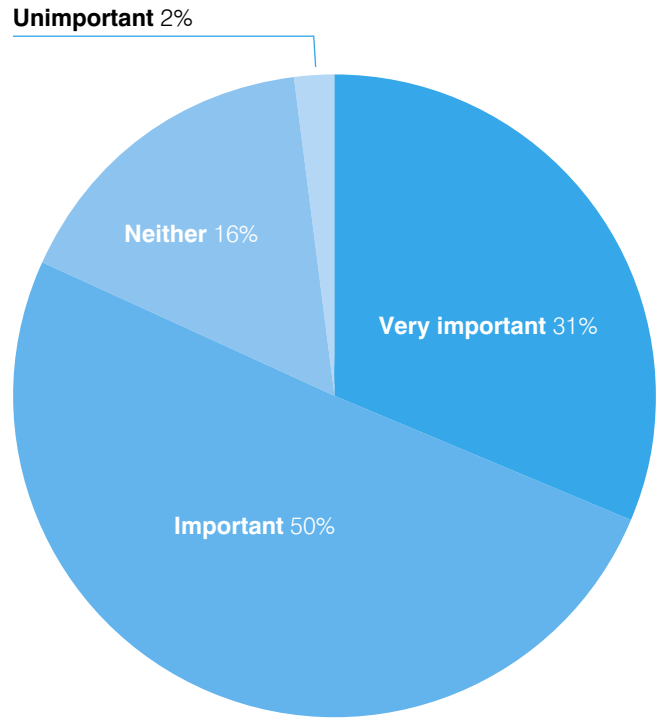


NB where figures do not total exactly 100%, this is due to rounding.

Staff facilities

6.21 Respondents to the Director of Nursing survey recognised that facilities are important to the performance of nursing staff, with 50% indicating that staff facilities are important and a further 31% indicating they are very important.

Figure 6.5: Importance of staff facilities in the performance of nursing staff



NB where figures do not total exactly 100%, this is due to rounding.

6.22 Facilities for staff, whilst not directly related to their performance at work, were also highlighted by nurses themselves as being important. Facilities such as lockers, showers, 24-hour canteens and crèche facilities were all stated to contribute to nursing staff being able to feel comfortable at work, thus being able to concentrate on their job. The location of canteens was frequently raised by nursing staff as being as far away from units as possible, thus meaning that nurses had to rush there for their breaks and rush back again – not allowing them time to relax away from the unit environment.

Having somewhere where you can go, have a cup of coffee, pay some of your bills, email different companies about things, it makes you feel that your needs are being taken into consideration in the design process, rather than as an add-on that we'll try and fit in somewhere if we can find an odd cupboard that we can put a plug in.

Source: PwC/CABE focus groups with nurses – London



CONCLUSIONS

Summary of key findings

7.1 Overall we found that hospital design had the greatest influence on nurses' performance, then their recruitment and finally their retention.

7.2 Many staff stated that it is difficult to separate out those factors that affected staff but did not affect patients, and vice versa. As all are part of the same environment, the factors that affect one will also, at least to some degree, affect the other.

7.3 The main difference between nursing staff and Directors of Nursing occurs in the perception of civic value which nurses rated more highly than Directors of Nursing. The other major area where differences emerged was in the provision of staff facilities, in terms of the performance of nursing staff. Directors of Nursing tended to rate this somewhat lower than the general opinion given as part of the focus groups, where they were seen as very important.

7.4 It must be highlighted that, in improving design, trade-offs will undoubtedly occur. A good example is daylight and view versus clinical adjacency and minimising travelling distances. The decision to minimise travelling distances may require a design that is more compact and deep plan, hence reducing the opportunity for allowing glazing and thus allowing views and natural daylight.

7.5 Focus group participants stated that, in general, nurses were consulted about hospital design, but many felt the consultation was done in a nominal way. This left staff feeling frustrated and dissatisfied, especially when they felt that their ideas were not taken on board. In one focus group, a number of staff had been involved in both PFI and traditional build contracts and felt that the PFI consultation requirements were beginning to make a difference to the nature and extent of staff consultation about hospital design.

It's great to involve staff, but are they listening? We often don't know what has been taken on board until the build is complete and we have moved in.

Source: PwC/CABE focus groups with nurses – Leeds

7.6 Overwhelmingly, staff felt that those who would be using particular units should be consulted about their design, prior to the start of the building work. Consultation with staff after the move to a new building was also highlighted as important so that issues could quickly be identified and corrected.

7.7 Overall, we found on the balance of evidence that there were a number of key areas, as demonstrated in Table 7.1, into which the design factors that matter to nurses fit. However, as evidenced by the table, we found that a number are more strongly aligned with performance as opposed to the recruitment of nurses.

7.8 The internal environment was an important factor. In particular space, storage and building/unit layout was found to be particularly important in the performance of nurses.

7.9 Nurses rated the provision of facilities highly. In particular nurses stated that the provision of facilities, whilst not directly related to their nursing, did make a difference to their performance as on-site facilities could mean they were more able to undertake a range of tasks without having to leave the hospital.

Table 7.1: Design factors influencing nurses – overall summary

Factors identified as part of this research	Factors identified in CABE's 'Healthy Hospitals' campaign	Recruitment	Retention	Performance
External space	Exterior & public transport	✓✓✓	✓✓	✓
	Landscape design	✓	✓	✓
Internal environment	Entrance and foyer	✓✓	✓	✓
	Layout	✓	✓	✓✓✓
	Signage	✓	–	–
	Interior	✓✓	✓✓	✓✓✓
	Storage	✓	✓✓	✓✓✓
Functionality	Design of consulting rooms	✓	✓✓	✓✓✓
	Versatility	✓	✓✓	✓✓✓
Civic value	Integration of architecture	✓✓✓	✓	✓
Facilities	–	✓✓	✓✓	✓✓✓

✓ = Limited evidence ✓✓ = Moderate evidence ✓✓✓ = Strong evidence

7.10 The findings from this research will be a useful addition to the existing evidence base in relation to the impact of well-designed public buildings. For example, PwC have produced two seminal pieces of research work for the Department for Education and Skills (DfES) in relation to the impact of school buildings, which indicated that there was some evidence that good design impacted positively on the pupil experience.

7.11 We believe that all of the above will contribute to the debate stimulated by the Prime Minister's challenge to Ministers and departments across Government in 2000 to achieve a fundamental change in the quality of building design.

Acknowledgements

The authors and CABE are indebted to the Project Steering Group for their assistance throughout this project. We are also grateful to the Royal College of Nursing for their assistance in organising and hosting focus groups throughout England, and would particularly like to thank the nurses who took part, for their willingness to share their, sometimes very personal, experiences of hospital design. Finally we would like to thank all those Directors and Assistant Directors of Nursing who took part in the postal and telephone survey as part of the research, for providing a very valuable insight into the importance of hospital design and its effect on the recruitment, retention and performance of nurses.

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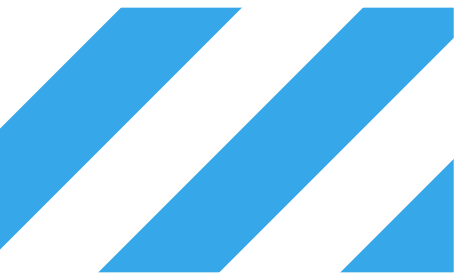
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