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**'Does the design of settings where acute care is delivered meet the needs of older people? Perspectives of patients, family carers, and staff'**

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## **Statement of conflict of interest**

None declared.

## **Keywords**

older people, older patients, acute care, hospital, physical environment, rehabilitation hospital

## **Abstract**

**Background:** Older people with an acute illness, many of whom are also frail, form a significant proportion of the acute hospital inpatient population. Attention is focusing on ways of improving the physical environment to optimize health outcomes and staff efficiency.

**Purpose:** This paper explores the effects of the physical environment in three acute care settings: Acute Hospital Site, In-patient Rehabilitation Hospital, and Intermediate Care Provision (a nursing home with some beds dedicated to intermediate care) chosen to represent different steps on the acute care pathway for older people and gain the perspectives of patients, family carers and staff.

**Methods:** Semi structured interviews were undertaken with 40 patient/carer dyads (where available) and three staff focus groups were conducted in each care setting with a range of staff.

**Results:** Multiple aspects of the physical environment were reported as important by patients, family carers, and staff. For example, visitors stressed the importance of access and parking; patients valued environments where privacy and dignity were protected; storage space was poor across all sites; security was important to patients but visitors want easy access to wards.

**Conclusions:** The physical environment is a significant component of acute care for older people, many of whom are also frail, but often comes second to organization of care, or relationships between actors in an episode of care.

## **Executive summary of key concepts**

This paper presents the qualitative component of a larger study which explored the effects of the physical environment on UK settings delivering acute care to frail, older people. Frail, older people form a significant proportion of the acute hospital inpatient population. Interviews and focus groups were carried out with patients, family carers, and staff in three different settings providing acute care to explore their perceptions of whether the physical environment met their needs.

Findings demonstrated that, while the physical environment often came second to environments reflecting human factors, such as organisation of care, and relationship between actors in an episode of care; several aspects were reported as being important. Patients valued environments where privacy and dignity were protected, while maintaining opportunities for company with others; storage space was poor across all sites; security was important to patients but visitors want easy access to wards; public transport to the sites was variable and parking was inadequate. Nevertheless, relatively inexpensive changes can be made to existing buildings during planned maintenance, and also by ward staff, and these small design changes can make a difference to the success of the built environment in hospitals in responding to the needs of frail, older inpatients.

## **Implications for Practice**

- The physical environment is a significant component of acute care for older people
- The physical environment often comes second to organization of care or relationships between actors in an episode of care
- Acute care settings do not always meet the needs of older patients
- Human factors were more important than the physical environment

## **Introduction**

Older people with acute illness form a significant proportion of the acute hospital inpatient population. In 2014-15, National Health Service (NHS) hospitals in England recorded 2.7 million episodes of General Medical inpatient care. Seventy seven percent of these admissions were emergencies, and 66% of patients were 60 years of age or older (Hospital Episode Statistics, 2014-15). Attention has increasingly focused on ways of improving the physical environment to optimize health outcomes and staff efficiency. Empirical studies suggest that outcomes for frail older inpatients are better in acute care environments that reduce unnecessary environmental and physiological stresses (Asplund et al., 2000; Inouye, Schlesinger, & Ly, 1999; Marcantonio, Ta, Duthie, & Resnick, 2002; Parker et al., 2002; Stuck, Siu, Wieland, Adams, & Rubenstein, 1993). 'Frailty' can be understood as functional decline with indications of poor physical health and co-morbidity, disability, vulnerability or lack of strength and resilience, poor mental health functioning including cognitive impairment or depression, dependence on others for activities of daily living, and old age (Markle-Reid & Browne, 2003). Clinical trials in this population have placed more emphasis on the processes of care than on the physical environment. Indeed, even in studies in which the place of care has been a component of an experimental, or quasi experimental study, the physical characteristics of the built environment under test have not often been described in detail (Parker et al., 2000). However, in design literature, the architecture of hospitals is recognized as important in contributing to patient well-being (Dalke, Littlefair, & Loe, 2004; NHS, 2005) and reviews of the literature highlight the importance of understanding the physical environment to positively affect the healing process and well-being of patients (Dijkstra, Pieterse, & Pruyn, 2006; Sloan Devlin, & Arneill, 2003). Nevertheless, despite ample guidance and evidence in support of better healthcare environments, to date, there has been little input about the design of acute care settings from the perspectives of older patients,

the staff who treat them, and the patients' informal carers (Huisman, Morales, van Hoof & Kort, 2012; Ottosen, Engebretson, & Etchegaray, 2017). This paper reports qualitative findings embedded within a larger research project examining the effects of the physical environment in UK settings where acute care for older people is delivered.

## **Method**

### **Study design**

Three care settings were chosen, representing different steps on the acute-care pathway for older people, different building types, and different building ages. An elderly care ward of a middle-sized National Health Service (NHS) Foundation Trust hospital (AHS), an In-patient Rehabilitation Hospital (RH) providing community rehabilitation on discharge from hospital to enable the patient to regain sufficient physical functioning and the confidence to return safely to their home. A nursing home with a number of beds dedicated to intermediate care provision (ICP) following discharge from hospital. Appropriate NHS Ethics and governance approvals were obtained.

### **Participants and recruitment**

Patient and carer participants were identified by the healthcare team and interviews were conducted in the participant's home. The intention was to purposively sample patient/carer dyads from each setting. When patients/carers had experienced multiple care environments during the current episode, their perceptions of their most recent episode of care were elicited. Ten patients from the AHS were recruited to the study. One declined participation following discharge from hospital and one passed away. Ten patients were also initially recruited from the RH and, of these, 2 were lost to follow up. Recruitment at the ICP ceased when 8 patients and their informal carer (where present) had been recruited and interviewed as data saturation had been achieved. A total of 40 participants were recruited and interviewed across the 3 sites (Table 1). Patients' ages ranged from 61 years to 89 years.

Ages were not specified for 2 patients and all carers. Carers comprised spouse, partner, daughter, son, daughter in law and friend. **INSERT TABLE 1 AND TABLE 2 ABOUT HERE**

### **Staff focus groups**

Potential staff participants across the three sites were identified and represented a range of disciplines with both clinical and non-clinical roles, (table 3). Focus groups rather than individual interviews with staff were chosen partly due staff schedules and their availability. This is an effective technique for exploring staff attitudes as staff are able to relate to each other's comments and experiences of the work place (Kitzinger, 1995), which aims to facilitate rich discussion. **INSERT TABLE 3 ABOUT HERE**

### **Data collection and analysis**

#### **Patients and carers**

Semi-structured interviews were carried out with older people and their informal carers. Building on early analysis of the literature a loose interview guide was designed that asked older people and carers to reflect on a number of broad topics including: the physical environment from the perspective of being a patient, how well the physical environment met the carer's needs, views on how well the physical environment enabled staff to do their job and to attend to patients' and carers' needs. Interviews between 1 to 1.5hours, and were conducted in participants' homes after discharge and, unless they requested otherwise, patients and carers were treated as a 'dyad' and interviewed together.

#### **Staff**

Staff perceptions were obtained via focus groups, with one group being held in each of the care settings. As with the interviews a loose topic guide, informed both by the literature and the preliminary analysis of the patient/carer interviews, was used to initiate discussion exploring aspects of the physical environment that positively or negatively affected staffs'



ability to do their job. Recordings were transcribed verbatim and transcripts anonymised to ensure confidentiality. The transcripts of the focus group discussions were analyzed in conjunction with the observations made by a second researcher present at the groups in order that the group dynamics and the interaction between group members formed part of the analysis.

Interviews and focus groups were recorded and transcribed verbatim and a coding frame was agreed by the research team. Data were analysed using a thematic approach based on the principles of grounded theory, whereby categories and relationships between them emerged from the data and were grouped into overarching themes. The data were then sorted and summarised according to the themes to enable detailed examination and interpretation, with searching for linkages, associations and deviant cases (Ritchie & Spencer, 1994).

## **Results**

Emerging from the data were multiple aspects of the physical environment that were singled out as important by patients, family carers, and staff, several of which were shared by all three groups (accessibility to the site, privacy and dignity, homelike environment, personal space/storage, awareness of the outside world, cleanliness and hygiene, quality and accessibility of the facilities, and safety and security).

### **Accessibility to the site**

Most comments about accessibility related to the surrounding space of the facilities and were made by informal carers, as they were more likely to be external visitors to the hospital.

Overall there were few concerns about the location of the AHS as, the hospital in question was well served by major roads and generally well served by public transport. Getting to the facility did not present major problems for carers/visitors, nor did the surrounding environment give cause for concern. However, this was not the case for the other two

facilities. The RH, although pleasantly located adjacent to open countryside (which as will be seen did have perceived advantages), was difficult to get to by public transport and, if family carers did not have access to a car, then getting to the hospital provided quite a challenge, often involving multiple buses. The ICP, whilst within the city was off a main direct bus route and was also located in an area that caused a number of the older carers some concern. Once inside the facility people were happy but the journey there was so ‘intimidating’ for some that they chose not to visit:

The home itself was a good distance away and also the area is not the nicest. The actual driving around there was very intimidating and I know that a lot of people didn’t go to visit because of that. (Carer 1, Female, ICP)

It was acknowledged by staff at the ICP that many carers were also the older age group and the lack of a direct bus route made visiting difficult and expensive to visit their relative:

So getting here is not that easy, the bus service is not brilliant so most of them come by taxi which is not cheap. (Porter, ICP)

Perhaps not surprisingly, given the above concerns about access and the reliance of most carers upon their car, the biggest single concern about the space surrounding the facility related to parking. This was voiced across all three sites but comment was particularly strident at the AHS. These related not only to the difficulties of finding a parking space but also to the cost if regular visits were made:

It costs £1.70 a time to visit. I was buying a £7 ticket for week so it’s like £15 the last time [patient] were in. (Carer 6, Female, AHS)

Whilst parking at the other two facilities was not quite as problematic, and free parking was available at the RH, there was still a paucity of spaces at times. Moreover, in the ICP, whilst there was parking on the roadside, concerns about the area noted above meant that many carers were reluctant to leave their car unattended.

## **Privacy and Dignity**

Once admitted into the hospitals, most salient to privacy from a patient perspective was whether or not they were in a single room or a 4/6 bedded bay. The AHS or RH patients interviewed preferred being on a ward rather than a single room, largely because of the opportunities offered for company from others:

I've never been in a single room, which I must admit I were happy about cos I'd rather be with two more blokes you know? And have a laugh and a joke. (Patient 3, male, 67 yrs, AHS)

In relation to patient dignity, there was some discussion about whether they felt a curtain around the bay offered any privacy during consultations with the medical team or during conversations with visitors:

When we went to visit [in the AHS], whatever was going on behind the curtain wasn't private because you could tell everything that was going on. I thought quite undignified really. (Carer 7, female, ICP)

There was a sense that patients were prepared to resign themselves to the fact that their privacy was compromised and they had to 'put up' with a less than ideal situation as that was 'all there was':

They pulled curtains round... but I think you accept that in hospital. (Patient 3, male, 67yrs, AHS)

## **Homelike environment**

The other aspects of the facility space that occasioned comment were the overall aesthetic appeal and look of the environment in question. Staff at all the facilities wanted their environment to look as 'homely' and as near to 'normal' as possible:

It's trying to make a home from home isn't it? So that they feel comfortable and not as disorientated when they come into hospital and not distressed. (Physiotherapist, RH)

Indeed staff on the elderly care wards at the AHS, where many patients with dementia were treated, noted that despite their efforts to the contrary (and due to an organisational environment that precluded innovation) they felt that the units were still too clinical:

You've got to have your infection targets on the wall, well why 'cos nobody looks at them. If a family member were that concerned they'd either talk to you, or go on the internet. (Lead Nurse 2, AHS)

A participant couple, who had multiple experience of hospital admission over many years, noted the 'industrial scale' of today's hospitals and the different atmosphere this generated compared to more modest sized facilities:

Yes it's, it's got a lot to do with the size [of acute hospital] that does seem to lead towards the sort of impersonal kind of quality whereas everything's at a human scale at the community hospital and I think that does make for a more restful environment and, and even a more optimistic one. (Carer 9, male, RH)

The overall aesthetic of the environment did not generate much comment at the AHS. This differed from the other two environments where both patients and carers praised the décor and related features. This may relate to the fact that they spent more time in these environments and that the patient's condition had improved so that considerations other than basic survival featured more prominently:

It was nicely coordinated. The bedspread was nice, the chair complemented that so it was a very, well kept, modern interior. (Patient 1, male, age not specified, ICP)

Staff at the ICP also iterated the importance of a homely and non-clinical atmosphere in terms of color scheme, décor and room layout stating that some residents also brought in their own possessions to enhance the homely feel:

Make it a bit more inviting while they're in that environment, it's their little patch.

(Maintenance Worker, ICP)

### **Personal space/storage**

Space and provision for storage was raised by many. By far the greatest number of comments were reserved for the adequacy, or otherwise, of the 'lockers' and related arrangements for storing personal possessions. All patients interviewed were concerned about this and identified areas for improvement in all three care settings. The AHS came in for most criticism, where the arrangements were seen a generally inadequate, especially for people with a long-standing disability:

Just a drawer, a shelf and a cupboard, so we'd nowhere to put her coat. (Carer 6, female, AHS)

In a locker which weren't suitable, it was just well it were a drawer basically, that's all it was so everything was crammed on top of one another. (Patient 10, male, 69yrs, AHS)

Comments were also made by those in the RH, especially if they had an extended stay:

Not much space, too small them lockers, especially if you're a long term patient.

(Patient 10, female, 61yrs, RH)

The positioning of the lockers relative to the surrounding space also caused difficulties in both the RH and the ICP:

Well it was a stupid wardrobe really because it was against the wall in a corner but when you'd got to have the bed rails up it was difficult to get in your drawers. (Patient 8, female, 80yrs, RH)

In the Rehabilitation Hospital, the small, curtained cubicles were also problematic for the domestic staff. Staff at the Acute Hospital remarked on the lack of space around patient beds and the struggle to get equipment such as hoists to the patient:

When we've got to have a commode and a chair, a bed and everything else [in the cubicle] it's difficult for us to vacuum under beds and mop because we've got to move furniture from side to side. (Domestic Assistant, RH)

Patient bays are quite cramped, when you've got four patients in one room you've got your bed and a chair and that's it. (Lead Nurse 2, AHS)

They also stated how this impacted on the importance of patients having their own belongings around them, and admitted this was difficult due to the lack of space around the bed areas:

You haven't got that opportunity to put your handbag on it needs to be on the bed.

Your table's small it fits a food tray and that's about it and your water jug. (Lead Nurse 1, AHS)

One patient commented positively on the bed itself and others noted facilities that enabled them to enhance their immediate environment:

The light over my bed was ideal because I like to do a bit of reading and at night time when I can't sleep. (Patient 5, male, 78yrs, AHS)

### **Awareness of the outside world**

Another area of the unit space that generated much comment was whether or not patients had access to, and could see out of, a window. This was noted across all three facilities:

We're extremely fortunate, almost all the windows have got a view. Then we've got the sun lounge down with absolutely superb views over the reservoir. (Charge Nurse, RH)

I used to go and look out and there were some birds and some rabbits running about a bit and it was always pleasant to see. (Patient 1, male, age not specified, RH)

At the ICP staff discussed the fairly limited views, and how residents have commented that it would be nice to have flowers or bushes outside to look at:

Some (residents) have said they could put some flowers or some bushes so when they get up in the morning it would be something nice to look at. (Deputy Manager, ICP)

In the AHS there was less potential in terms of a view but nevertheless being able to see out of a window was viewed as highly desirable. The only facility where patients and carers had easy access to a garden area was the RH, and this was widely appreciated. Staff at the RH was also very proud of the surroundings and the building itself stating that the hospital was purpose built and although old, still stood 'head and shoulders' above others:

From the environment point of view though a lot of positive feedback about the gardens. ... [Carers] can come and take the patients if they're in wheelchairs, there's a gazebo type area. (Physiotherapy Team Leader, RH)

### **Cleanliness and hygiene**

Cleanliness of the facilities at the sites was important to all participants and lack of cleanliness was commented upon multiple times by both patients and carers interviewed. Some deliberately 'checked' the cleanliness of the environment and used it as a proxy measure for the broader quality standards of the facility. The carer below describes how, in order to fill empty time, he would observe the cleaning practices in the AHS whilst he was a patient there:

I mean one of the sports in the waiting rooms is to watch the cleaners. Note where there's some rubbish being dropped and as the cleaner moves down the room you say 'right are they going to pick it up, not going to pick it up' and mostly they didn't pick it up. (Carer 9, male, AHS)

However this was not everyone's experience and some participants commented on how clean, for example, the AHS was:

I couldn't speak highly enough about [AHS]. I thought it were excellent. (Carer 3, male, AHS)

Despite these conflicting experiences, the importance attached to cleanliness in relation to the wider physical environment, is obvious and this was reinforced in respect of the other two facilities, which came in for considerable praise. Moreover, the general standard of cleanliness was linked with an absence of a typical 'smell' that many associated with care environments for older people:

Because you get that smell don't you in old peoples' homes, although I didn't particularly find it here. (Carer 3, female, ICP)

### **Quality and accessibility of the facilities**

In relation to facilities, easy access to toilet/bathroom facilities, especially for those who were regaining mobility was an important consideration in all three settings. For those who had been treated at the AHS, concern was voiced about the distance of bathrooms from the main bed areas and the rather limited provision, which was not the case at the other sites:

One of the things about [RH] was every bay and every social area had at least two loos more or less adjacent. I was up on a zimmer frame it was relatively easy you know if you needed to go to the loo there was something there. (Patient 9, female 68yrs, RH)

Staff at the ICP remarked that in an 'ideal world', each resident would have their own personal shower in their bedroom. This was reiterated by staff at the AHS but it was acknowledged that this would mean losing beds. One of the RH patients stated how they would also have appreciated a shower room:



Definitely shortage of a disabled shower, that's one big thing that's missing. (Patient 10, female, 61yrs, RH)

A number of patients also alluded to having a bath facility in very positive terms, and some would have liked to have one more frequently, as this contributed to their overall sense of well-being:

RH: 'Bathrooms were marvellous, that bath that they lower down and put you in.

(Patient 8, female, 80yrs, RH)

Indeed the environment as a whole was often not seen to promote independence as well as it might across the various settings:

In the room itself no there were no grab rails. (Patient 6, male, 82yrs, ICP)

### **Staff facilities**

In relation to facilities for staff, a commonality raised across the 3 sites was the lack of designated spaces for staff to use, and they often had to make compromises. Staff at the AHS discussed the lack of space on the ward for team meetings, stating that they did have a room but it was very cramped and used to store equipment so was not ideal. They also mentioned that they would like an area for staff to store their personal belongings. There were similar issues at the ICP, where staff interviewed said they would like a dedicated training/meeting room because the current situation means they were forced to use resident spaces such as the dining room or lounge. Furthermore, at this facility there was also nowhere for night staff to take their breaks when they needed time away to rest:

There's no provision for night staff when they have their one hour break. So they

don't come from the floor 'cos there's nowhere to sit. (Deputy Manager, ICP)

Staff, especially in the AHS, had other concerns about the facility environment, especially the lack of dedicated rehabilitation facilities on or near the unit. This was seen to cause

considerable problems and demand extra resources, not only in transporting patients to and from the ward but the reduced times when these facilities were available:

If any of our patients need therapy they have to be transported down and across to another area which is not ideal. (Lead Nurse 2, AHS)

Furthermore, at the AHS, there were therapy facilities that could not be used as they were unfit for purpose, which stood in marked contrast to resources available at the RH:

Like setting a kitchen up with no running water so it can't be utilized ... when you've got dementia patients they're used to doing everything in a very specific way. And if you don't see them do it the way they would normally do it what's the point at all?  
(Physiotherapist, AHS)

We've got a separate therapy area, a gym, an assessment kitchen, bathroom and bedroom so that works really well for us. Just simple things like mixed flooring types so we've got the lino, tiled areas and carpet which represents patient's homes.  
(Physiotherapy Team Lead, RH)

### **Safety and Security**

A further area of note relating to the facility space was arrangements made with regard to security, particularly of personal possessions. Units in the AHS had an entry system that required visitors to ring and wait to be allowed access. Sometimes this caused frustration as members of staff were occasionally slow to respond:

There was one day when visiting started at half past six and we were stood outside between ten and fifteen minutes. There was about ten people, and people were getting wound up. (Carer 3, male, AHS)

However, on the whole both patients and carers were happy with any security measures as there were incidences of theft of personal possessions recounted a number of times:

While he'd gone to toilet somebody had nipped in and took his wallet ... But it didn't happen this time cos that ward is secure. (Carer 9, female, AHS)

I came back to bed from sitting room one day when I were getting up and I'd won a necklace at bingo and it had gone. (Patient 10, female, 61yrs, RH)

## **Discussion**

Growing numbers of older patients being admitted into acute care settings means that their needs in relation to the physical environment need to be addressed, but there has been a paucity of research in this area. This paper has explored the views of patients, carers and NHS staff about the care environments that are experienced by older patients with acute illness, who are often frail and may have cognitive impairment acutely, or as part of a long term cognitive decline. **Key findings indicate some homogenized view points across three different acute care building types, for example, variable provision of public transport and inadequate parking, protection of privacy and dignity while maintaining opportunities for company, lack of personal storage, and the importance of cleanliness and security.** These are discussed in relation to the wider literature below.

**Accessibility issues were raised at all three sites.** The rural location of the RH was difficult for some to get to, particularly those without their own transport. Although well served by public transport, the ICP was located in an area where visitors reported feeling intimidated by the location and local residents. At the AHS, the lack of availability of parking spaces was raised by family carers. Family carers also mentioned the cost of paying for parking at the AHS, which echoes existing research relating to patients attending outpatient rehabilitation by taxi (Cooper, Jackson, Weinman, & Home, 2005). Similarly, a key theme cited in Murray, Craigs, Hill, Honey, & House (2012) systematic review examining barriers to uptake and completion of cardiovascular lifestyle behavior change cited longer commute time, distance from venue and associated transport costs. Although it is difficult to account

for such factors when siting services in pre-existing facilities the potential impact on older family carers needs to be considered.

There has been much debate in the literature and wider media regarding the supposed superiority of a single room (Chaudhary, Mahmood, & Valente, 2006; Ulrich, Berry, Quan, & Parish, 2010) and the architectural evaluation of these environments (Barnes, Piegaze-Lindquist, & Torrington, 2016) rated them higher, especially in terms of privacy. Whilst there is an intuitive logic to this argument our data would suggest that the issue is not so clear cut. **Indeed on balance, patients seemed to prefer being located in a bay as they often found a single room isolating.** They would happily trade off a perceived (usually by others rather than the patient) lack of privacy for company and stimulation as participants in this study reported developing close, if transient relationships with other patients. It may also be that patients were prepared to accept this and resign themselves to the fact that ‘that was all there was’ and ‘put up’ with a less than ideal situation.

Parker et al. (2004) described how staff morale was associated with a more personalised, less institutionalised environment for residents in nursing homes yet many features of the homelike environment have been shown to run counter to the ‘business’ of healthcare. Although staff at the RH and AHS sites strived to make the environment as homelike as possible, they recognized that clinical features could not be avoided. The homelike environment was praised at the RH and ICP, which resonates with existing research reporting how ‘homeliness’ is rated as very important by residents themselves (Burton & Sheehan, 2010). However, some have argued that despite a homely interior decoration, residents in nursing homes have little opportunity to practice a private daily lifestyle (Hauge & Heggen, 2008).

The lack of space and provision for storage of personal items was raised as an issue of great importance by many of the participants across all three sites, particularly the AHS. This

could relate to a lack of autonomy that patients felt when they were unable to have control over their immediate environment (Parker et al., 2004). All participants discussed the availability of the outdoor space at their particular site and access to the outside or at least an external view via a window. An awareness of the outside world and the value of green spaces has been cited by many as beneficial to patients (Burton & Sheehan, 2010; Innes, Kelly, & Dincarslan, 2011; Kearney & Winterbottom, 2005; Rappe & Sirkka-Liisa, 2005). For example, access to a garden has led to less agitated and inappropriate behaviors, improved mood and quality of life for care home residents with dementia and their family carers (Detweiler, Murphy, Myers, & Kim, 2008) with the ability to impact on their speed of recovery and length of hospital stay (Lawson & Wells-Thorpe, 2002).

As the above suggests, there was considerable comment about many aspects of the physical environment, ranging from the location of the facility itself right through to the space immediately surrounding the patient's bed. Much of this was positive but there was also room for improvement in both the design of the space and how space and equipment were used. As part of the wider study on which this paper is based, a building evaluation reported that all three sites had achieved very good hygiene scores (Barnes et al., 2016). However, as identified in this qualitative analysis, the patients and carers themselves reported mixed views, highlighting the potential conflict between objective measures and more in depth qualitative interpretation.

Carers reported frustration with security measures particularly around gaining access to the ward at visiting times but incidences of theft of personal items were reported. Research has shown that it is important to promote a feeling of personal safety and security to reduce distress and support healing (Hung et al., 2014) but to strike a balance between personal safety/security so the patient does not feel 'over monitored', which could potentially affect their quality of life (Parker et al, 2004). There is a growing body of evidence to suggest that

effective building design can have a positive impact on staff health, well-being, and job satisfaction (Ulrich et al., 2010). However, a common issue raised by staff at all three sites was the lack of designated staff spaces such as purpose built meeting rooms and provision for night staff on break periods.

### **Study limitations**

This study has provided new evidence about the design of acute care settings from the perspective of patients, their informal carers, and staff. Certain study limitations must be acknowledged. All patients began their journey following an acute care admission before being discharged home or transferred to the RH or ICP. This sometimes affected their ability to make the distinction between facilities as they had experienced many care environments. Patients and informal carers also found it difficult to focus solely on the aspects of the physical environment without referring to their experience of the standard of nursing care they received, their interaction with other patients, and organisational issues such as discharge planning. The sample size was relatively small, and findings cannot be generalized from this single qualitative study. We were only able to obtain the perspective of three members of staff from the AHS.

### **Recommendations for further research**

Future research could focus on patients' length of stay in settings delivering acute care as this could impact on how the environment was perceived. It may also be useful to examine the effect of cultural norms as differentiators on room preference.

### **Conclusions**

**A picture has emerged of the physical environment as an important component of acute care for frail older people**, but one which often comes second to other, more obviously fluid, and changeable, environments. In particular, those related to human factors such as the organisation of care, or the relationships between the actors in an episode of care. Further, it

is clear that the recollection of environment in which a patient experiences a life threatening episode of illness and associated care will often focus on the acute care processes, rather than the physical environment in which they were experienced. However, relatively inexpensive changes can be made to existing buildings during planned maintenance, and also by ward staff which can improve the environment for frail, older people, and these small design changes can make a difference to the success of the built environment in hospitals in responding to the needs of older inpatients.

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**Table 1: Patient and informal carer recruitment (per site)**

	Patient	Carer	Total
<b>AHS</b>	8 (7 male; 1 female)	6 (1 male; 5 female)	14
<b>RH</b>	8 (2 male; 6 female)	4 (2 male; 2 female)	12
<b>ICP</b>	8 (2 male; 6 female)	6 (2 male; 4 female)	14
			<b>40</b>

**Table 2: Patient demographic information (per site)**

AHS patient	AHS carer	RH patient	RH carer	ICP patient	ICP carer
AHS03 M 67	CAHS03 M	RH01 M 75	CRH01 F	ICP01 M ?	CICP01 F
AHS04 M 83	CAHS04 F	RH04 F 78	CRH04 M	ICP02 F 83	CICP02 M
AHS05 M 78		RH05 F 70		ICP03 F 83	CICP03 F
AHS06 F 78	CAHS06 F	RH06 M 81		ICP04 F 82	
AHS07 M 72		RH07 F 89	CRH07 F	ICP05 F ?	CICP05 F
AHS08 M 83	CAHS08 F	RH08 F 80		ICP06 M 82	
AHS09 M 67	CAHS09 F	RH09 F 68	CRH09 M	ICP07 F 80	CICP07 F
ASH10 M 69	CAHS10 F	RH10 F 61		ICP08 F 75	CICP08 M

M = Male (age), F= Female (age). ICP01 & ICP05 age unknown. Carers age not specified. Carers comprised: spouse, partner, daughter, son, daughter in law, friend.

**Table 3: Staff focus groups (per site)**

	Focus group
<b>AHS</b>	3 participants: 2 Lead Nurses, 1 Physiotherapist
<b>RH</b>	7 participants: Charge Nurse; Physiotherapist Team Lead; Shift Porter; Hospital Manager; Domestic Supervisor; Domestic Assistant; Ward Sister
<b>ICP</b>	9 participants: Registered General Nurse; Domestic Assistant; Maintenance Worker; Housekeeper; 3 x Care Assistants; Deputy Manager/RGN; Activity Coordinator