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Hospital Architecture is an Interdisciplinary Business

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The health service is currently undergoing a period of rapid expansion, placing challenging new demands on treatment, communication and architecture. This is particularly relevant in light of the increase in ambulatory care, which demands a lot from patient-staff communication. One approach to this challenge is to work deliberately with the design of the physical environment; increasing the quality of treatment, positively changing the experiences of the patients, and thereby improving the bottom line.

In the Scandinavian healthcare system, and especially in hospitals, there has long been a transition away from stationary treatment, in which the patient is hospitalised, to so-called ambulant treatment pathways, where the patient visits the hospital for a short period without being admitted. The number of ambulant treatments increased by 19 % during the period from 2006-2011 (source: Statistics Denmark), while at the same time the number of bed days decreased by 12 % - the average admission period in general medicine is now as low as 3.7 days (source: Danish Regions).

Ambulant patient pathways are, broadly speaking, recognised to be cheaper, more patientsecure, more productive and highly resourceeffective, and at the same time, they do not passivise patients in the manner that stationary treatment does. It is significant as well that the patients appreciate being diagnosed and treated without having to be admitted. Today you are only hospitalised if you are seriously ill. Anything else would become too expensive and too difficult to organise. The patient of the future is the well-informed citizen, increasingly recognised as a customer; they demand effective, secure and qualified service from the hospital. Therefore, hospitals must focus on the weakest patients concurrently with processing all other patients/ customers in a resource effective and high quality manner.

Consequently the ambulant pathways must be as short as possible. Therefore communication between nurse and patient is paramount. If it does not function optimally during ambulatory care, there is a significant risk that the patient will not understand what they are asked or informed about. This may result in errors occurring during diagnosis or treatment. In extreme cases, this may result in an incomplete treatment course, which forces the patient to return to the hospital or seek treatment elsewhere. These results increase costs and are of great inconvenience to the patient.

The More Ambulant Treatment, the More Important the Architecture

Architecture and communication are closely connected areas on a practical (acoustic, sound, space etc.) as well as on the more abstract, atmospheric level. Both affect practical communication and influence both the patients' and the nurses' sense of communal roles and relations. If there is not a thoroughly processed symbiosis between the patients' needs and the purpose of the nursing, situations will arise where the patients, in spite of the intentions of the nurses, will not receive the medical attention needed. In situations like this, ambulatory care takes place in an outpatient clinic, where speed and efficiency are crucial. Here it is pivotal that the architecture and interior supports communication and its purpose. The following example will illustrate how. There is no time to waste and no time for the patient to get to know and get comfortable with the staff before the treatment begins. Not only for the patient, but also for the nurse there is a limited timeperiod to form an understanding of the individual patient, and thereafter decide what kind of treatment course is best suited to them. The risk is that nursing is reduced to anonymous procedures and impersonal standards.

The Short-Term Outpatient Department

Stine's fieldwork during her nursing education has, amongst other things, generated this example:

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A young man sitting in the hallway is approached by one of the nurses, who with a subdued voice informs him about something. He is clearly confused and the nurse urges him to join her in the nurses' room for a personal talk. As they walk along the corridor to the nurses' room, the conversation begins. The nurse walks quickly in front of the patient, who tries to keep up. Fragments of their conversation can be heard by the surrounding people. This is neither conducive to communication or trust, and seems both undignified and at odds with the patient's lawful right of confidentiality.

Stine's final project in her nursing education analysed the many interactions between nurse and patient that occur in ambulatory care units and outpatient departments. These encounters take place in hallways, waiting rooms, by the elevators, in car parks etc. Data indicates a need to redefine how and where nursing actually takes place – especially in short interactions such as an outpatient situation, where the communication between patient and nurse has a very limited timeframe. Thought should be given to the performance of nursing in new and alternative contexts. The most significant factors here are reassuring settings, which promote a feeling of safety that optimises the communication value.

Settings Create Value

Architecture within the healthcare system has recently been experiencing increased interest from politicians, scientists, employees and not least the patients. It is of course especially relevant for those of us who work with evidence-based science. The physical settings of the healthcare system are cost-intensive, one-off investments, where bad decisions have permanent and negative implications on the operating economy in the future. This is especially relevant for logistics, productivity, performance specification, organisation and work environment. Large sums are at stake, and therefore concrete financial rationales are often allowed to control the decision-making processes concerning design and architecture (Tryggstad, 2011 and Flyvbjerg 2008). Patient security is also a relevant parameter in Denmark, though still on a much lesser scale compared to other countries, where lawsuits regarding patient compensation, which can be attributed to architecture and design, are increasing rapidly. The trend is clear and the logic obvious, from both ethical and socioeconomic perspectives.

But what we as nurses and architects find strange is that the more fundamental factors such as productivity, process optimisation and patient security are still very superficially treated; often in broad terms and with macro-economic 'guesstimates'. These are basic factors that deal with the patients' interaction with the staff, with technology and with the hospital as a whole (space, interiors and architecture). When combined, these minor factors, add up to a level that justifies analysis into the hows and whys of physical settings in the healthcare system. Indeed, they have an impact on the economic bottom line. Therefore these factors should be integrated into the design and concept development process for new hospitals. These factors should also be at the centre of the ongoing adjustments and adaptations to the physical environment for optimisation purposes. The work processes for employees, interdisciplinary cooperation, the IT system and medico-technological opportunities are all important factors.

The above example can hopefully be seen as a challenge to the existing trends of standardisation and the 'one-size-fits-all' architecture. Hospitals need to look at the existing praxis and determine what to have more or less of in the future. We believe that a thorough analysis of today's praxis is a thus far unexploited source, which could strengthen the architects' insight into the kind of organisation for which they are designing.

It is also our claim that the analyses can increase the health professionals' understanding and exploitation of the potential and limitations of the physical setting in their performance of medical care, communication, therapy etc.

The South Jutland Hospital

At the new South Jutland Hospital in Aabenraa, they take the meaning of their surroundings seriously, acknowledging that the rooms that contain us affect both our body and mind. The surroundings are thereby a crucial element when it comes to treatment, nursing and healing. From the moment you enter the hospital in Aabenraa, it is clear that it has been crucial for the architects to create a comfortable, welcoming and warm atmosphere. Already in the main lobby you can sense the quality and attention that is at the centre of the hospital. When you feel that thought has been put into the surroundings and settings, you intuitively feel more secure, and really begin believing that the treatment you receive in the hospital is of good quality. The hospital staff are also influenced by their surroundings. A workplace that an employee can take pride in demands that staff live up to the values exhibited by the surroundings.

A lot takes place within the walls of a hospital, and as the example above shows, there is also a lot of patient-related contact and nursing outside of the well-defined, functionally determined rooms. Therefore, it has been essential in Aabenraa to create areas for both patients and employees in for example the hallways where space is limited. By working with well-defined zones in the hallway, you avoid the problem of people getting in each other's way, which is uncomfortable and inconvenient for patients/relatives as well as for staff. One side of the hallway is dedicated to the staff – here the focus lies in professionalism, orderliness, and quick and easy access to the necessary work tools. On the other side of the hallway is a more social zone. Here a calm mood has been created by gathering artistic elements and objects. There is a beautifully executed wooden bar which can be used as a support when walking down the hallway, or to make exercise routines. There are wall hung folding chairs to be used if you require a rest, or if relatives wish to have an informal talk outside of the patient room.

The mounting of art has a secondary function in that it can be used in walking exercises. The pictures are hung at certain intervals (like the folding chairs) so the physiotherapist does not have to place disruptive traffic cones in the hallway.

Art, furniture, lighting and signposting - all of the elements in the hallway are selected from the same concept and theme. There is a clear and coherent hierarchy so the different elements do not have to fight for attention. Care when decorating and furnishing ensures an atmosphere of safety, intimacy and warmth is created. In these surroundings, the pace is naturally slower and time for conversation is generated, time to hear and to understand each other. This creates both quality and efficiency in healthcare.

As mentioned before, time and the appropriate settings for communication between patients and nurses are important factors to ensure quality and efficiency but they are difficult to achieve in a busy department setting, which is rarely tailored to the purpose. Nursing theories combined with design and décor can improve conditions for patient-nurse interaction, promoting intimacy, dialogue and safety. According to the Norwegian philosopher and healthcare scientist Kari Martinsen, creating space for intimacy and privacy is essential in an otherwise noisy and restless hallway in a hospital (Martinsen, 2005).

This can be achieved through the establishment of small meeting points, conversation stations and niches, which divide a long and unmanageable hallway into smaller, clearer sections without the intense traffic of busy staff members. This establishes a private space in the middle of the chaos and anxiety of the hallway, where the patient becomes more visible. In this way, a place for sensory engagement and time between patient and nurse is created. This initiative can facilitate communication, trust and safety for the patient, and strengthen their experience and recovery.

The patients' need for privacy and their individual behaviour is of course personal, and physical settings can be a factor in aiding or inhibiting these relationships. The architecture of the hospital and limited physical spaces can provoke feelings of unfamiliarity and 'wrong-ness'. They can be so stressful that the patient hurries to get out of the hospital, perhaps without providing the staff with the necessary information or without having understood everything they have been asked or informed about.

If the architecture and the physical setting of the hospital are not prioritised with a focus on productivity and efficiency, the nurses' work environment becomes strained, and they are prevented from delivering care in a quality-filled and result-orientated manner. This leads to negative treatment outcomes for the patient as well as low work satisfaction for the nurse, and can have serious consequences for the socio-economics of the health system.

With this in mind, we at ArchiMed are in no doubt that there is room for improvement, and that the building boom in the healthcare sector during the years to come ought to take these relationships seriously – from the point when the programme is devised, when the competition proposal is assessed, when the project proposal is adopted, through the obligatory cost-cutting periods, and right through until the building is in use and undergoing continuous redesign and adaption.

One of the areas where there is great potential for improvement is the meeting point of the different professionals - where nurses, doctors and other staff meet the architect, the engineer and the designer. Health professionals must help the building professionals to create the best possible solutions for the exact functions, processes and work practices a hospital contains. And the building professionals have to improve the way they explain the innovative value of their concept in a way that makes sense for the health professionals.

In many ways, a hospital is a very complex and changeable system. Describing such a place to people who are not used to moving through it demands precision and care. Not at least when this description forms the basis on which the architect's professional competence can unfold. A professional competence that allows the architect to think up new spatial coherences and opportunities that can benefit the staff, the patients and the economy of the hospital.

The call must be made to support the different professionals in forming a closer cooperation, thereby exploiting each competence and role to the fullest. The architect must trust that the nurse has the best insight in order to describe the optimal nursing practices, and conversely the nurse must trust that the architect is fully capable of translating words into spaces. The nurse does not need to be an architect, but the cooperation should be trusting and challenging in order for the healthcare system to evolve in everyone's interest. In this way alone can we create a healthcare system that provides the best results and value for money.

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