

# HEALING ARCHITECTURE

**Exploratory case study of the influence of 1 and 3-bed wards on the interaction between relatives and patients on two Intensive units in Denmark.**

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## SUMMARY

### **Healing Architecture - space for relations**

An explorative case study of architectural elements that support interactions between patients and caregivers in the hospital.

The project examines how architecture and design of space in the intensive unit promote or hinder interaction between relatives and patients. The primary starting point is the relatives. Relatives' support and interaction with their loved ones is important in order to promote the patients' healing process. Therefore knowledge on how space can support interaction is fundamental for the architect, in order to make the best design solutions. Several scientific studies document that the hospital's architecture and design are important for human healing processes, including how the physical environment can have both positive and negative influence on the interaction between the patients, relatives and staff. These are f .ex. the possibility of privacy in intimate and confidential conversations, the possibility of visits by relatives and the importance of furnishing for the course of the conversation. The project is an exploratory case study and consists of systematic observations, interviews and photo documentation. The aim is to collect different kinds of data on: 1. Relatives' behavior 2. Relatives' experience and 3. Environment. In order to guide the collection of data and the analysis of them Goffman's backstage-frontstage theory and Lawson's 'Language of Space' are used. Data is analyzed in accordance with principles describes in Robert Yin's 'Case Study Research'. The goal of the project is to create new knowledge which can contribute to new ways to design, plan and organize the hospital and qualify architectural and design solutions in order to improve the quality of interaction between relative and patient in the hospital's intensive unit.

Keywords: Healing Architecture, Design of Hospitals, Intensive Unit, Treatment Room, Interaction, Relatives, Patient.

## 1. INTRODUCTION

We have chosen to examine the spatial conditions for relatives of patients in intensive care units. Seen in the context of the treatment, these relatives are particularly important, as they can constitute the only access to information about the patient, and also they are the ones who become the primary support during the entire healing process. Furthermore, it can be the last period of time the relatives have with their loved ones. In all respects, the togetherness and the relation between the patient and the relative are of utmost importance. In spite of that it is our impression that there is no physical space for the relative in the intensive care units. Prior to the investigation, we had the feeling that the place and space made available to the relative typically was a light chair next to the patient's bed and a more or less comfortable lounge area in the ward.

### **Purpose**

The purpose of the project is to explore architectural elements which are instrumental in creating frameworks which support the interaction between patients and relatives. The goal is to create new knowledge which can firstly, contribute to new ways of designing, planning and organising the hospital and secondly, qualify

architectural and design solutions in order to improve the quality of the interaction between people in the hospital.

### **Background**

Several scientific studies document that the architecture and interior design of the hospital have an impact on the healing process of the human being, including that the physical surroundings can have a positive as well as a negative influence on the interaction between patient, relatives and staff. (Ulrich, Zimring et al. 2008, Frandsen, Ryhl et al. 2011, Lawson 2002, Lawson, Phiri 2003)

Various studies have shown that the relative is of great significance to the patient. The relatives are important because they motivate the patient to stay alive and continue the struggle to survive. The relatives help the patients to stay in touch with reality. They give the patient hope and strength to fight against a critical disease or injuries. Patients have reported that the relatives were even more important than the professional caregivers. And patients who survived a critical disease told that their love for their partner grew deeper and closer, and they described their partner as their lifeline. (Eriksson, Bergbom 2007, Eriksson, Lindahl et al. 2010, Maddox, Dunn et al. 2001, JE Hupcey, Zimmerman 2000, Magarey, McCutcheon 2005)

Thus, there is no doubt that the relative plays a crucial role for the patient, but how the physical structures facilitate the stay of the relatives and in which way these influence the healing process of the patient is not clear.

## **2. RESEARCH QUESTIONS**

The project investigates how the architecture and the fitting out on two intensive units support or hinder the relatives' interaction with the patient.

### **Question:**

Do relatives of patients in 1-bed wards have a different interaction with the person in hospital – including a different use of the lounge for relatives, passages and rooms outside the unit – than relatives of patients in 3-bed wards?

The question is investigated by answering the following:

- What characterizes the relatives' interaction with patients in an intensive unit?
- What are the architectural characteristics of the rooms which the relatives stay in and use?
- How do the relatives experience the rooms which they stay in and use?
- Is there a link between the relatives' behaviour, experience and the characteristics of the rooms?

## **3. METODE**

### **4.1 Exploratory Case Study**

The investigation is an exploratory study working with how to approach the relation between space and human interaction (Zachariae 1998). The project is a multiple-case study, building on the case study method (Yin 1994). According to Yin, studies of phenomena in the present must be conducted where the phenomenon takes place, and therefore both the phenomenon and its context must be studied. This project aims at investigating the phenomenon 'interaction between patient and relative' and the relation of this phenomenon to the design and interior layout. In broad terms, the principles in Yin's case study build on the fact that the investigation has to take into consideration that there are often many more variables than actual measurable points in the situation to be investigated. This means that one depends on data from several different sources and that these have to meet in a triangulation. It also means that the investigation benefits from the preceding theoretical statements, which can guide the collection of data and the analysis. A comparative case study implies that a project report is worked out for each case – unit. Subsequently, the results from the reports are compared and conclusions are drawn across these.

## 4.2 Qualitative and Quantitative investigation methods

The point of departure for the project was to use both qualitative (interviews and photo documentation) and quantitative (systematic observation) collecting methods with the aim of getting more angles on the formulation of the problem, while creating better conditions for reaching valid and reliable results. (Yin 1994, Nielsen 2009, Sommer, Sommer 2002) In connection with the systematic observation of the quantitative method we experienced a number of obstacles, which meant that this method had to change approach.

### 4.2.1 Choice of units

The units have been chosen because of their different types of wards: Randers has 1-bed wards (and 2-bed wards) and Aarhus has 3-bed wards. The two intensive units have in common that they administer treatment and care of critically ill patients. Neuro-intensive differs from intensive in Randers by being specialised within neurology and it has a regional function. Data have been collected from one more unit, viz. an intensive unit in Vejle. Data from this unit will not be presented in this paper, as they are too weak to qualify the analysis and the discussion of the chosen subjects.

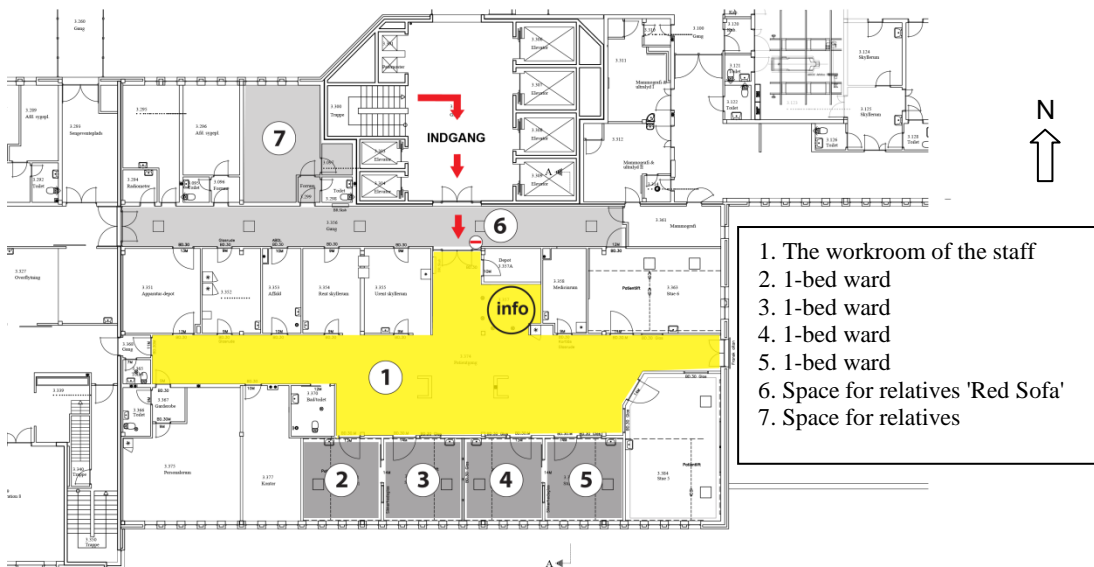


Fig. 1 Outline of the intensive unit in Randers.

The rooms described have been marked with colours and numbers. Randers intensive unit has been renovated a few years ago. The unit is on the 3<sup>rd</sup> floor and therefore you get there by lift or via staircase. The windows of the 1-bed wards face south and have a view across town. Before the renovation, the present staffroom was a passage which has now been transformed and is placed at the heart of the unit. Among other things this means that all the patients' wards have doors facing this room, and that relatives walk into the workroom of the staff before arriving at the patients' wards.

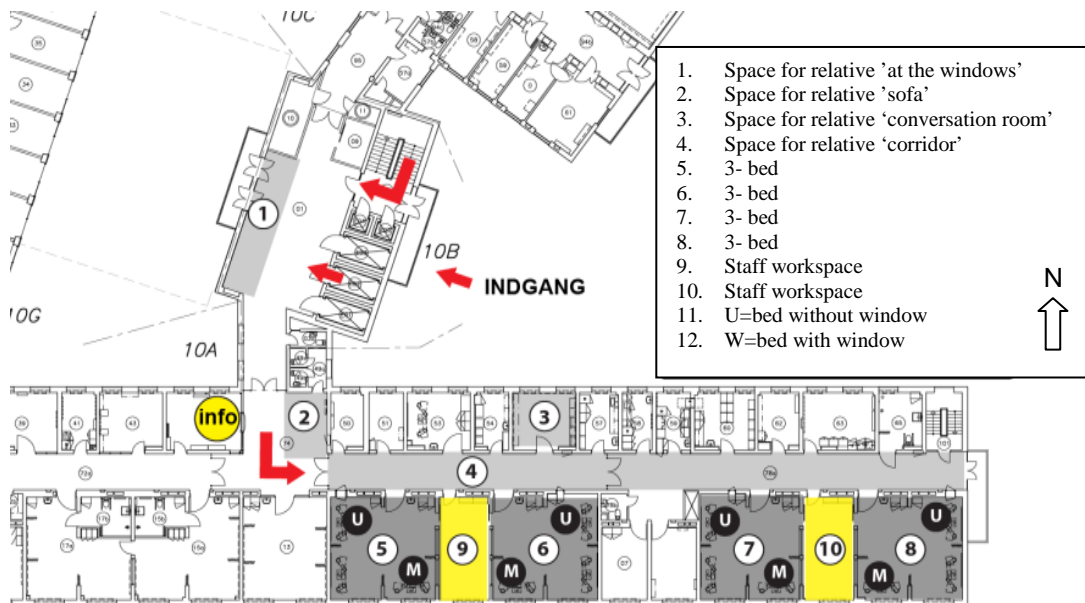


Fig. 2 Outline of Neuro-intensive unit in Aarhus.

The rooms described have been marked with colours and numbers. The intensive unit in Aarhus is on the 6<sup>th</sup> floor, and you get there by lift or via staircase. The unit is constructed traditionally with a long passage, where smaller rooms are on the left side and patients' wards and workrooms for the staff are on the right side. All the wards face south east and have a view across the city and the harbour.

The unit has an extra room for relatives on the 5<sup>th</sup> floor. This is not mentioned by the informants and therefore does not appear on the plan of the unit.

#### 4.22 Interviews

The purpose with the interviews is to explore the relatives' experience of the ward – what they see, hear and smell, when they are in the ward and to examine how the physical structures inhibit or promote interaction with their loved ones (the patients) and the staff. We are also interested in finding out where the relatives stay in the unit, when they are not with the patient, and how the relatives experience distances in the unit. The interviews have a phenomenological approach and take their point of departure in the perspectives on and descriptions of the world by the actors themselves. In the conduction of the interview guide as well as in the subsequent analysis we have relied on Kvale (Kvale, Brinkmann 2009)

With the interview guide as reference we conducted 6 semi-structured interviews – 3 in Randers (3 informants) and 3 (5 informants) in Aarhus. The interviews lasted between 15 minutes and 1 hour. The intention was that the interviews were to take place while we walked around in the units, based on the theory that people experience and sense space through movement (Gibson 1986). This did not seem natural in all situations however and the interviews were conducted where it felt comfortable for the informant – in the ward, in the passages, conversation rooms and lounges. Our aim was to interview 3 people in each unit and create a fair amount of variation in the relatives' perspectives, by talking to relatives to patients with varying ailments. We also wanted variation in the number of days of admission and in age. All informants received written and oral information about the project and were told that they could interrupt the interview at any time.

#### 4.23 Photo documentation

The purpose with the photo documentation of the units is to be able to make an architectural analysis of the physical surroundings in the unit. The observer documents the two units photographically. The photographs are taken casually and intuitively. A photographic subject is activated in the investigation, when it is mentioned, touched or created by the relative.

#### 4.24 Systematic observation

The purpose is to observe how the relatives stay and move around in the different types of rooms as well as how they interact with the patient. The wards in question are the 1-bed ward and the 3-bed ward. We want to observe possible differences and similarities in behaviour (stationary, movement and interaction) in the different types of wards.

We use Robert Sommer's method in the preparation of the observation tool (Sommer, Sommer 2002). Systematic observation is a quantitative method which is positivistic in its point of departure. Using a preparatory 'casual observation' in the units as background, we specify the categories which are to be observed. This involves: 1. **where the relatives stay** in the ward in relation to the patient, other relatives and the staff as well as furniture, machines and anything else in the room, 2. **how the relatives move** in the ward in relation to the patient, other relatives and the staff as well as furniture, machines and other things in the room and 3. **how the relatives interact with the patient, fellow relatives and the staff:** are they talking, looking, touching, doing something together, spending time in silence etc. We have worked out codes for these actions and made an observation schedule in Excel. The observation tool has been tested by two impartial persons, by observation of relatives in a 2-bed ward. However, the schedule turned out to be too complicated, when using it for observation of relatives in a 3-bed ward. It was not possible for the observer to take note of all the actions. This implies that the validity and reliability of the observation tool are weak. In this paper the results from the observations are used as guidelines, and statistics based on the figures will not be analysed, as was initially intended.

In the two units 16+17 observations have taken place, respectively. Of these 4 were interrupted, 1 has missing data, 7 are emergencies and 6 take place in atypical types of wards. These observations are not included in the investigation. The chosen observations are linked to two types of wards. The 1-bed ward in Randers (Fig. 1 : ward 2+3+4+5). The wards are identical in terms of looks, size and design and are all placed with windows facing south east. In the following these wards will be named 1-bed. In Aarhus there are four 3-bed wards in total. They are also identical in terms of looks, size and design and are all placed on the same side of the passage. In Aarhus a distinction is made between two placements of the beds in the 3-bed ward. These are the beds **WithOut** window (Fig. 2: **WO**), which are named 3-bed WO and the beds **With** window (Fig.2: **W**), which are named 3-bed W.

An observation starts when the relative enters the ward and finishes, when the relative leaves the ward – the sequence is called a situation. A situation is not the same as the duration of a stay, as some relatives leave the ward either to eat or to make a phone call as an example - and then return to the ward. In some cases this means that a new situation can be observed with the same relative. In the analysis phase the observations are summed up in what Robert Sommer calls 'Place Centred Maps' (Sommer, Sommer 2002). This allows the observations to be compared from bed to bed from type of ward to type of ward.

During all observations the observer wears a white coat and a name tag, for two reasons. One is because of hygiene, which is part of the regulations in the units. The other one is that in this way the observer looks like the other employees and thus attracts the least possible attention during the observations. In the 1-bed units the observer was sitting outside the ward, looking into it. In the 3-bed units the observer was sitting at a small desk in the wards while observing. All observations took place in the daytime and during the evenings, during weekdays and week-ends and lasted 3 months (April, May, June).

#### 4.25 Ethical considerations

All contacts to the relatives have been brought about by the staff in the unit, so that the relatives could easily decline the offer to participate in the project. Existing legislation related to administration, personal data and ethics of science has been observed.

## 4. THEORY AND SPATIAL ANALYSIS TOOLS

### **The space – part of the interaction between people**

Bryan Lawson writes in his book 'Language of Space' (Lawson 2001), that space and that which limits space are central in our daily life. Space is that which can bring us together as well as keep us apart. Therefore it is fundamental for the way in which our relations work. According to Lawson space is essential for fundamental and universal communication. People's spatial language can be observed wherever people meet. Architecture organises and structures space for us; its interior and the objects it includes can facilitate or hinder our activities in the way in which they use this landscape. Because spatial language is not directly heard nor seen and not at all written down, it gets little attention from a formal perspective. But we all make use of it throughout life, when we move around in space and relate to others: when we talk together the space between us is part of our communication.

*'First, there is the 'setting', involving furniture, décor, physical layout, and other background items which supply the scenery and stage props for the spate of human action played out before, within, or upon it.'*  
(Goffman 1959)p22

According to Goffman, interaction requires both physical presence and simultaneity. The interaction between people involves the surroundings. In the book 'The Presentation of Self in Everyday Life' he defines interaction like this 'For the purpose of this report, interaction (that is, face-to-face interaction) may be roughly defined as the reciprocal influence of individuals upon one another's actions when in one another's immediate physical presence' (Goffman 1959) (p15) Goffman is interested in social situations – small daily encounters limited by time and space. He links the situation to the place and the context, which has an influence on how the situation unfolds. In 'The Presentation of Self in Everyday Life' Goffman presents his dramaturgic perspective. He works with situations which take their point of departure in daily, social life and become a kind of drama without any clear boundary between actors and audience. This is also called the theatre metaphor. He describes how life can, at times, be in the nature of a theatre, and how people in their mutual interaction can take on different roles, have facades and be manipulative. People “stage” themselves and support others in their staging. As Goffman sees it we, as human beings, act as performers and audience in turn.(Jacobsen, Kristiansen 2004)

Goffman works with differentiation between frontstage – the stage which normally constitutes reality – and backstage - which is regarded as more private. When we, as human beings, are able to alternate between acting as performers and audience, it must imply that the space we find ourselves in alternates between frontstage and backstage. Before leaving Goffman it is important to keep in mind that Goffman does not pretend that social life is a theatre, a strategic play or a ritual, but that in considering it so, and in efforts to develop taxonomies and concepts, we become able to better understand the nature of this social order. We may thereby obtain a deeper insight into what differentiates 'frontstage' from 'backstage' in architectural terms.

With particular emphasis on Goffman's incorporation of physical space, Bryan Lawson claims that the individual human being has to make an individual mark on the space for it to facilitate those identities, we use in our daily life. Much of this cannot be done by architects, but is facilitated by the people who use the space themselves. The challenge for architects is creating space which facilitates 'taking ownership' of the space and making it personal.(Lawson 2001)p31

## **5. RESULTS AND ANALYSIS**

Three results have emerged from the investigation in focus here. These are A: 'Space for privacy' B: 'Close and far' and C: 'The significance of machines in the space'. First we treat results and analysis from interviews, then systematic observation expressed in diagrams with explanatory text. Finally a few photos from the photo-documentation are shown.

### **6.1 Interview**

## Space for privacy

### 1-bed

All three informants feel bothered by the sounds in the unit. However, different sounds are pointed out. One person points out the sounds from the adjacent staffroom and from patients in the other wards, generally. The content of conversation is influenced by several conditions, among others that the door to the nurses' room is always left open. For one informant that means that she is afraid to disturb the staff when she speaks.

Another informant mentions that it can be difficult to have serious conversations, when the staff can also 'listen'. One relative says: *'I have so often wondered when I am sitting in there if I am actually allowed to close the door.'*

One informant experiences the 1-bed ward as comfortable. In relation to being able to see the other patients, one person says that it is not pleasant – particularly if they are in very bad state. One relative says: *'I know that the minutes I have with him in there now are precious, because he can only cope with short visits.'*

### 3-bed

Informant 4 tells that he has not witnessed anything he did not feel like witnessing. If he becomes affected, then this is not something he will allow himself to be influenced by. He also tells that sometimes he is just sitting looking out the window. All the informants experience it as comforting that the staff can look in and see the patient. Informant 5 tells that the glass window facing the staff room in particular makes the room less confined. Informant 4 says that when comparing to an ordinary ward, then there is more to see in an intensive ward and there is also more activity.

Informant 5 says: *'Well in the beginning I do not think I saw so much. I actually notice that if the curtains are not completely drawn to the other patients, then I cannot help looking in there. But otherwise I do not think that I see anything. There are white surfaces everywhere, and then there is him.'* Informant 6 tells that when she is with her husband, she can draw the curtain so nobody can see them. When she leaves the ward she draws the curtains back, so the staff can look inside. Informant 7 experienced the first days, where she and her husband were in the unit with their hospitalised son all the time, as very stressful. This is partly because you see other relatives grieving, partly one's own difficult situation as powerless parents. Informant 5 sees the curtains as particular for the room. So do informants 7 and 8. To the question about what informant 7 sees in the ward, she says: *'Well nothing, just those stupid curtains, you are actually cooped up.'* Informant 8 says: *'It is awful, there are two seats by the window and then one in the corner – it is simply – it is almost depressing being in that corner. Just being able to look out, that actually means a lot, now we are just sitting looking into this white sheet or curtain--- Just the fact that no light comes in, because it does not come through the curtains.'*

Informants 4 and 8 have both had conversations with the doctor in the ward by the bed. None of them have experienced it as a problem that others were present in the ward who could also listen, in principle. Informants 4, 6 and 8 experience the curtain as protective and that it creates privacy. Informant 5 has overheard a situation from one of the other patients in the ward, which she would rather have been without. She would also prefer that her father was in a private ward. Informant 4 has double feelings regarding a private ward or not. He says that sounds from other patients do not bother him. Furthermore he says: *'On the contrary I would say that if you were in a private ward, then you might lose the sense of your surroundings. I do not think that is nice. You measure yourself a bit against your surroundings. In some situations it might be nice to be in a private ward, but I think it is OK.'* Informant 6 has experienced noise from other patients, but does not really know, what it means to her. Informant 8 experiences that the fact that you can hear what is going on in the room, has a positive effect on the cooperation of the nurses, who easily can overlap and help each other. To the question whether he has been aware that others were present in the ward, during the conversations with the doctor, informant 8 answers: *'No, because I do not think ... (reflects)... we have not noticed that others were present in there during the conversations, because we have been so focused on our boy. It also depends how curious you are.'* He adds: *'it does not matter. And then again – because we have known all the time that things would probably move in the right direction, and it is possible that, if they did not, then the conversation should be more private'...* *'But if it is downhill, then you should not have the*

*conversation in there, then you have to be positive in there. It is obvious that a conversation would influence you in a negative way.'*

Informant 6 mentions a situation from the previous day, where a fellow patient was on the toilet, but the smell from there disappeared quickly. During the visit with the patient, then informants 4, 7 and 8 participate in the care of the patient with the staff. It matters to participate. Informant 8 says: *' We attempt to help and support the nurses, wash him and change him. That is quite nice, instead of just sitting there. Also because then you are closer to him when you have some physical contact. When he is away anyway ( drug induced sleep in connection with respirator treatment), and we do not have the possibility to hug him, then it is a kind of closeness and a form of therapy in our case, I think.'*

Informants 5 and 6 visit the patient approx. 1/2 hour daily. They always stand up – one on either side of the bed. Because he cannot be contacted, they think it is difficult to communicate with him. Most often it is silent togetherness they have with their father. They also think that if they lived closer, they would have visited him more, but transport back and forth is experienced as overwhelming, and sleeping at a patient hotel is expensive in the long run. Informant 4 tells: *' I stand up, sit down, walk around a bit, try to make eye-contact with her, touch her, I offer my help to the staff. That is nice. It is both -and.....'*

In relation to the fact that there are fellow patients and fellow relatives in the ward informant 4 says: *' Of course, it creates more activity when there are three beds that need to be serviced, but it also feels secure. Maybe you can get a bit shyer, you do not just throw yourself into ... maybe you have to control your feelings a bit more. But everybody is in the same boat. It is the same problem, so there is nothing wrong in expressing your feelings. And then the curtains also are drawn. I think this works well. I think it feels more secure. You get pushed a bit. For me this works OK'*. Informant 7 thinks that even if their boy was in a private ward they would still meet other relatives in other parts of the unit. Informant 8 continues and says that private wards require having two nurses in each ward, but here they can supplement each other, and that feels secure.

## **Distance and closeness**

### ***1-bed***

A relative tells that the time she has with her father is precious. He can only cope with short visits, and she tells that she needs to be close to him, so she can touch his face and his hands. She also tells that in order to touch his face she has to stand up.

### ***3-bed***

Informant 7 says *' you go crazy from being here'* and that she needs a break – it is nice to get away a bit. She has not slept in the unit the last couple of nights, because there are too many interruptions in the form of sounds and alarms. She asks for *' a room where you can sit and have a good cup of coffee and actually sit in a good chair.'* Informant 8 says: *' If you are here, you might as well be over there (points to the door where the boy is lying) and when you are out of the house, then you get a bit of distance to it.'* This corresponds well with the perception of informant 4. When there is waiting time in connection with the visits of the informants, then informants 4,5, 7 and 8 want to stay as close as possible to the patient. Typically, informant 4 waits in the passage just outside the door to the ward, where the wife lies. When he is standing by the door waiting, he knows that the staff will not forget him. Informant 5 prefers to wait in the corner with the sofa. She says: *' but that is because you are closer, then you can better follow what is going on. But perhaps you are more sheltered the other place (the lounge area by the lifts).'*

Informant 7 and 8 suggest that a room for relatives in connection with the ward would be optimal. Informant 6 prefers the area by the lifts, where there are windows. Informants 4, 7 and 8, who spend longer periods of time in the hospital, all express that when they are in the unit, they want to be physically close to the patient all the time – or else completely out of the hospital area. Informant 8 asks for a room where there is silence and something to look at which let thoughts come and go, for example an aquarium – not a TV. Informant 7 would like a room for relatives with TV, good furniture and quiet: a silent place, which is not a thoroughfare, and which is close to their boy and provides the experience that 'he is just over there'.

That wish is also shared by informant 4, who needs 'the sense that she is just in there'. Informant 4 says: *'Otherwise I wait just out here ( in the passage in front of the door to the ward where his wife lies)like a schoolboy who has been put outside the door, but they always smile, so it does not matter.'*

## **The impact of the machines in the room**

### ***1-bed***

Informant 1 and 2 first see the person they are going to visit, after that the machines. The machines in the ward are experienced negatively, in different ways, by all three informants. Informant 2 experiences the machines as very scary, but she has got used to them, over time. Informant 2 feels bothered by the sounds from the oxygen (whistling in the tubes of the machines) as well as the alarms of the machines. Informant 3 points out that music may drown out the sounds of the machines. Informant 3 says about the machines: *' in the wards, the machines have their space'* and further *' I just think they are in the way for us to be able to be together.'* Informant 3 tells that the machines are in the way, when you are finding the chairs, when you are going to the wash basin to give fresh water to the flowers. The staff has to be able to read the information on the screens, so the ceiling light is on all the time. The informant would prefer more intimate lighting. She also says that the bed is placed in the middle of the floor to make space for the machines, so that they are easy to get to for the staff – but as she says, then nobody sleeps in the middle of the floor.

Informant 3 tells that when the hospitalised father-in-law sleeps, then the mother-in-law sits looking at the machines, she does not know what else to do. Informants 2 and 3 experience the encounter with the machines as violent and scary. However it lessens over time. Informant 1 experiences that the alarms of the machines interrupt the conversation. She tells that when the alarm goes off, then something blinks, and then somebody enters to switch it off. She is also afraid that, by mistake, she may touch something on the machines she is not supposed to touch. The machines belong to the staff, and they are obviously there for a reason – nothing can be done about that. Furthermore they should be easy to get to for the nurses. The visitors all need to be close to the person they are visiting. One visitor sits in the foot of the bed, another stands up to be able to get close enough to the patient to touch his face and hands, a third has seen the mother-in-law having problems getting close enough to her hospitalised husband, because the machines are blocking the way for the wheel chair she is sitting in and needs space for.

### ***3-bed***

Informant 4 finds that the machines can appear a bit overwhelming, in the beginning, but that it lessens over time. However, he reacts when the alarms go off and in this connection needs contact with the staff. The same applies to informant 6, but not to informants 7 and 8. Informant 7 is particularly bothered by the alarms, because they 'cling and clang' so one's sleep is ruined. Informant 7 says: *' Well actually, you just do not sleep here – when an alarm goes off, you wake up – is he moving – then (whistle) you wake up. But then I slept over here (the small conversation room) that was better. I had a bed put in there.'*

Informants 7 and 8 experience the machines as assurance that their boy is well. Regarding the alarms from the machines, informant 4 says: *' Right in the beginning – then you react, when you are not quite familiar with them. One's senses become more alert. As soon as something is bipping or bleeping, you need to find out that it is not dangerous... you become stressed. It is one's wife lying there .... Then you want to have eye contact with somebody out there ( points towards the staff) ... There is no doubt that the response time for the staff to react to the alarms must be short.'*

To the question about how she sees the machines, informant 6 says: *'I do not think anything in particular. Other than I am standing looking at blood pressure and temperature. And if it then suddenly starts bipping, then you become a little nervous .... I can just have the thought ' why don't they come – should I fetch them' - but maybe that also appears as if one does not really trust them'.*

## **6.2 Systematic observation**

As written earlier, no statistics have been worked out from the observations because of incomplete validation of the observation method. This means that the registrations are to be understood as guidelines and pointers

of differences and similarities between the different types of wards. The results presented here relate to the four themes we focus on in this paper.

	<b>1-bed</b>	<b>3-bed WO</b>	<b>3-bed W</b>
<b>Number of situations observed</b>	8	7	5
<b>Number of situations with more than 1 relative</b>	2	5	1
<b>Number of relatives observed</b>	11	15	7
<b>The duration of the situations</b>	Between 26 min and 1 hour 3 min Average 38 min	Between 11 min and 2 hours 2 min Average 34 min	Between 19 min and 54 min Average 30 min

Fig. 3: Basic information about the observed situations.

### Space for privacy

In relation to the theme 'space for privacy' it is interesting to look at the number of persons in the room during the visits from relatives. Here we see that in the 1-bed ward the number of people in the room is distinctly lower than in the 3-bed ward – it varies from 3.5 persons to 11 persons. There is also more traffic in the 3-bed ward. Here one of the staff members passes through the door to the ward and out again every second minute constantly, during the entire situation. In the 1-bed ward things are different. Here a staff member comes and goes every 11 minutes during the situation. There are clearly big differences between the number of staff members in the room and also the number of persons, who are entering and leaving the rooms. ( Fig. 4)

	<b>1-bed</b>	<b>3-bed WO</b>	<b>3-bed W</b>
<b>Number of persons in the room during visits from relatives (patient, relatives and other patients not included).</b>	Average 3,5	Average 11	Average 10,6
<b>Number of times a member of staff enters or leaves the room on the average, during the situation</b>	Every 11,3 minutes 1 member of staff <b>enters and leaves</b> the room	Every 1,9 minutes 1 member of staff <b>enters and leaves</b> the room	Every 1,7 minutes 1 member of staff <b>enters and leaves</b> the room

Fig. 4: Registration of persons and activities around the relative/s during the visit situation.

In connection with space for privacy, the most striking is that no relatives – that is 0 % - in the three types of wards has shown visible emotions in the form of tears during the observations. Another striking observation is that fewer relatives speak to the staff in the 1-bed wards ( 27 %) than in the 3-bed wards ( 80 % and 71 %) (Fig. 5)

	<b>1-bed</b>	<b>3-bed WO</b>	<b>3-bed W</b>
<b>Number of relatives ( p)</b>	11p = 100 %	15 p = 100 %	7= 100 %
<b>Stand up</b> Number of p standing up during visit	8p = 73 %	14 p = 93 %	7 p= 100 %
<b>Sit down</b> Number of p sitting down during visit	10 p= 91 %	3 p = 20 %	3 p = 43 %
<b>Talk</b> Number of p having a normal conversation	7 p = 64 %	8 p = 53 %	7 p = 100 %
<b>Minus talk</b> Number of p present without	5 p = 45 %	5 p = 33 %	3 p = 43 %

talking – quiet togetherness			
<b>Prof. Talk</b> Number of p speaking with staff about subjects related to the patient	3 p = 27 %	12 p = 80 %	5 p = 71 %
<b>Visible emotions</b> Number of p who visibly cry during the visit	0 p = 0 %	0 p = 0 %	0 p = 0 %
<b>Touch</b> Number of p touching the patient, stroking cheek or hand, hugging	6 p = 55 %	11 p = 73 %	6 p = 86 %

Fig. 5: Overview of registrations of what the relatives do during the visit.

The results emphasised here have focus on whether the relative/s stand or sit and on how they interact with the patient.

### Distance and closeness

Closeness to the patient in all three types of wards is reflected in whether the relatives touch the patient, like stroke the cheek, stroke the hand, massage arms or legs and hug and kiss. In the 1-bed ward 55 % of the relatives touch the patient during the visit. In the 3-bed ward WO it is 73 % and in the 3-bed ward W, 86 % of the relatives touch the patient. In the 3-bed ward WO, the relatives actually touch the patient more than they speak to him or her. In this connection it is important to remember that several of the patients cannot be contacted. (Fig. 5)

### The influence of the machines in the room

The design of the room influences directly how the relative can use the room during the visit, in a practical way. The diagrams fig. 6 + 7 + 8 show where the relatives place themselves during the visit, and we can see that the relatives primarily place themselves in the zones along the bed. It is however worth noticing that in the 1-bed - and 3-bed W wards only a few relatives place themselves in zone 8. On fig.5 we see that 91 % of the relatives in the 1-bed ward sit down during their visit. This differs from the 3-bed wards, where 20 % and 43 % of the relatives sit down, respectively.

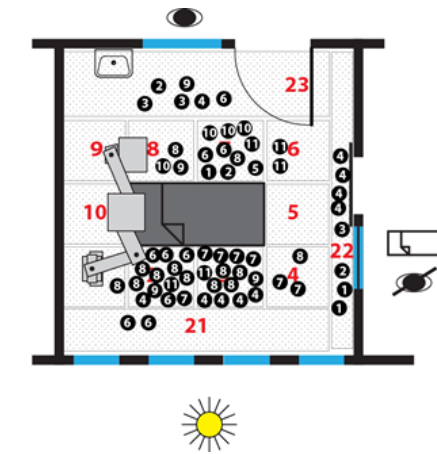


Fig. 6: Diagram showing where the relatives place themselves in the 1-bed ward. 62 positions from 11 relatives have been marked on the plan.

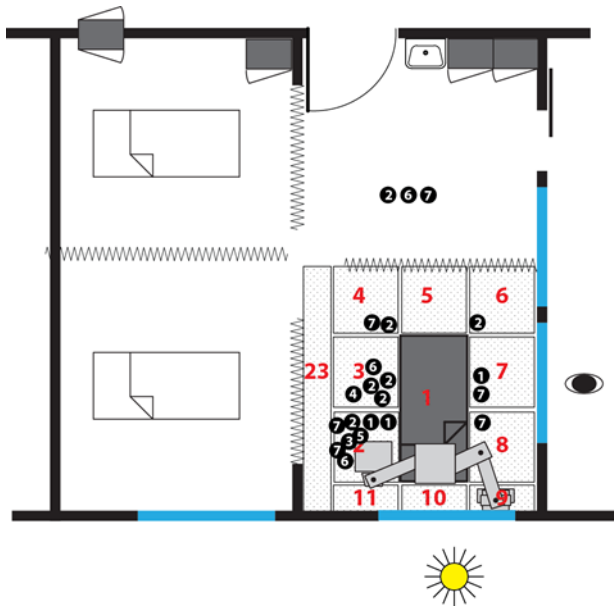


Fig. 7: Diagram showing where the relatives place themselves in the 3-bed W ward. 22 positions from 7 relatives have been marked on the plan.

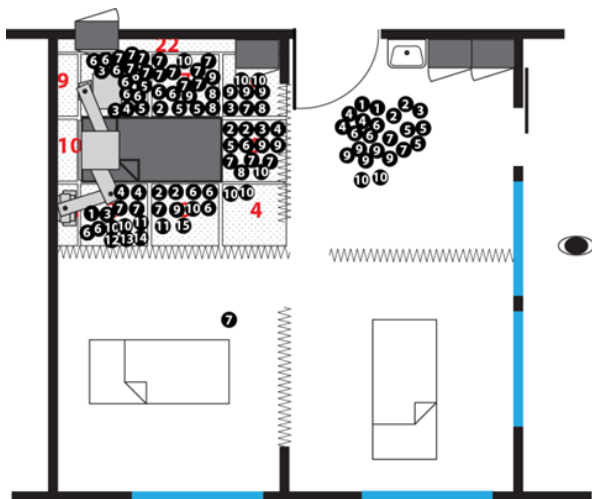


Fig. 8: Diagram showing where the relatives place themselves in the 3-bed WO ward. 105 positions from 15 relatives have been marked on the plan.

We also see that there is a big difference in how much the relatives move around in the ward. Some are quite stationary, while others walk around more in the ward. By way of example, relative number 5 from 1-bed only sits in zone 7, whereas relatives number 6 and 8 move from one side of the bed to the other. We see a similar picture in the two 3-bed wards.

Furthermore, in comparing the three diagrams it can be seen that there is considerably less space around the bed in the two 3-bed wards compared to the 1-bed ward.

### **6.3 Photo:** ***1-bed ward***



Fig. 9: 1-bed ward

To the left in the photo, the windows used by the nurses to observe the patients through. To the right you can see windows with a view of the town of Randers.



Fig. 10: Observation window facing the 1-bed ward. Here you can see the nurses' observation window and table.

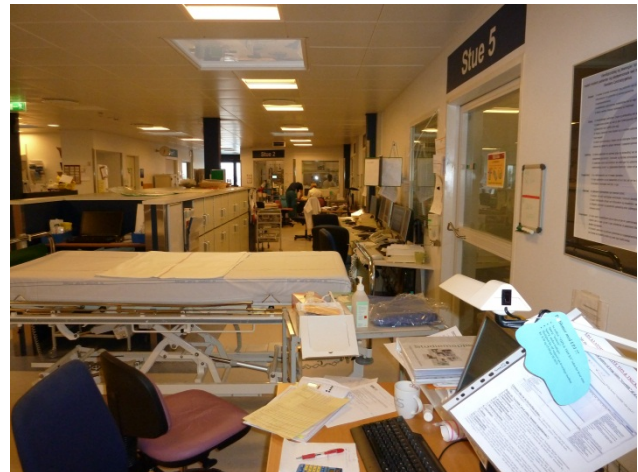


Fig. 11: View across the workroom of the staff. To the right you can see windows and doors to the 1-bed wards. The door to ward 5 is closed because the patient has been isolated.

### 3-bed ward



Fig.14: The 3-bed ward. Space next to the observation window of the staff as well as the window with daylight and a view of Aarhus.



Fig.12: 3-bed ward. To the left in the photo you see the space without windows. When the curtains have been drawn, there is neither a view nor daylight. Notice the yellow back wall in the ward. As there are no patients in two of the spaces in the ward, the curtains have been drawn back. The photo was taken with the back to the workroom of the staff.



Figure 13: The workroom of the staff, from where you can look into two 3-bed wards.

## 6. DISCUSSION

### Space for privacy

It is thought provoking that the relatives who were interviewed in the 3-bed ward – where all beds have two solid walls and two curtain divisions – experience a kind of privacy, where they consider it OK to conduct conversations with the doctor and generally do not feel bothered by sounds from fellow patients and also can see their fellow patients, now and again. This privacy has been created by white fabric curtains, which do not protect from sounds and also do not create 100% visual privacy. Furthermore a distinctly larger number of people enter and leave the ward. Our count says that one person enters and leaves the room approx. every 2 minutes. One person interviewed tells that he 'closes out the others', and another tells that he experiences 'that we are all in the same boat' and in this way shares his privacy with fellow relatives. Thus it is not an uncomplicated type of privacy which is experienced, and apparently the relatives use mental mechanisms in order to compensate for lacking physical screening, in this way.

This can be linked with the 1-bed ward, where a relative was afraid to talk with her father, because she did not wish to disturb the staff outside the door, and another relative told that her mother-in-law found it difficult to talk with her husband about difficult subjects, when the door was left open to the staff, all the time. In the 1-bed ward, where the architectural criteria for privacy are present in the form of solid walls, and windows which can be screened off, privacy for conversation is not experienced – because the door is never closed. Here, there is markedly less traffic of people in the room than in the 3-bed ward (a person enters and leaves approx. every 12 minutes). It is possible that in this case the 1-bed ward constitutes a false sense of privacy, which is experienced as insecure. Relatives in the 3-bed wards express that in some cases it might be nice with a 1-bed ward, but also find it gives a secure feeling that the staff is so close all the time – that it is easy for the staff to work together and that the activity in the room feels secure. One relative expresses that one might easily feel isolated in a 1-bed ward.

Another remarkable result is that none of the relatives we observed, neither in the 1-bed wards nor in the 3-bed wards, cried in spite of the fact that they were all in a very vulnerable situation with a seriously ill, close family member. Relative 1 says that '*Maybe you become a bit shy; you don't just throw yourself into .... perhaps you have to control your feelings a bit more. But everybody is in the same boat. The problems are the same, so there is nothing wrong in expressing your feelings. And then the curtains are also drawn. I think it works fine. I think it seems more secure.*' He is suggesting that you restrain yourself, but also that it is OK to show your feelings.

In a way, the curtains in the 3-bed ward symbolise the change of stage from public to private, in terms of Goffman's concepts, from frontstage to backstage. In the 1-bed ward the backstage never becomes fully established, because the door remains open. And the curtains in particular play an essential role in the 3-bed ward. All the four relatives to patients in a 3-bed ward WO emphasise the curtains as something special. Informant 6 tells that when she is with her husband, she can draw the curtains, so nobody can look in. When she leaves the ward, she draws the curtains back, so the staff can look in. Informant 5 says directly that she considers the curtains particular for the room. To the question about what informant 7 sees in the ward, she replies: '*Well nothing, just these stupid curtains; you are cooped up.*' And informant 8 continues: '*It is terrible, there are two seats by the window and then one in the corner – it is simply – it is almost depressing to be in that corner. This thing to be able to look out, that really means a lot, now we are just sitting looking into this white sheet or curtain ..... Just the fact that no light comes in, it does not come through the curtains.*' The wife of informant 4 is in a 3-bed W ward, where there is a window with daylight and a view of the city of Aarhus; he tells that he simply enjoys sitting looking out the window, when he is in the ward.

### Distance and closeness

All the relatives express that when they are in the unit, they wish to be close to the patient. The relatives need to be so close to the patient that they can touch him/her and participate in the daily care. Goffman refers to interactions as constant reactions and adjustments to each other. Often, it is not possible to contact the patient in an intensive care unit, who may also have difficulty speaking because of a respirator. That means the interaction does not only consist of words, but to a large degree of touch.

If the relatives are not very close to the patient, then they prefer not to be in the hospital area. The spaces for relatives in the units are primarily used to spend waiting time. One person does not use the waiting areas, but prefers to stand in the passage just outside the door, so he is close to his wife. A few ask for a room in direct connection with the ward, where you can just relax in a sofa and where it is quiet. Being a relative to a patient in an intensive unit is hard work. In both units most relatives prefer waiting areas close to the ward, from where you can keep an eye on what goes on.

### **The influence of the machines in the ward**

The machines are essential in the design and organisation of the ward and have an impact on the interaction between the patient and the relative, in several ways. The machines are big and take up physical space just around the patient's head in the ward. Often, the patient is unable to move without help, but lies flat in the bed with the head slightly raised. When the relative and the patient are to look at each other it requires that the relative stands close to the machines. One relative says that the thought that you might happen to touch something feels insecure. Another relative has experienced that the mother-in-law, who is visiting her husband, is not able to get close enough to him, as she uses a wheel chair and the legs push against the machines. To enable the staff to use the machines, the bed has been placed in the middle of the floor – and as informant 3 says, and then nobody sleeps in the middle of the floor. Keeping Lawson in mind, the machines have an undesirable impact on the interaction between the relative and the patient, in relation to the design and structure of the room. With the words of informant 3: *'The ward is the place of machines' .... 'I just think they are in the way of us to be together.'* Others experience that the machines create a feeling of security and give assurance that the patient is well. Most relatives however react to the alarms of the machines, and they all need the staff to react fairly quickly. The alarms of the machines feel stressful. Apart from creating security, the machines also function as visual stimulation. The relatives look at them, and one of them likes that there is more to look at in an intensive ward than in an ordinary ward.

Bryan Lawson writes that it should be possible to take over the room by the users of it. But can relatives take over a room, which is structured and organised like a workspace for the staff of the unit?

## **7. METADISCUSSION**

It is difficult to draw an actual conclusion with this study as a background. An attempt will become a summary of the findings and will appear as a repetition of the discussion, only put together in a slightly different way.

The attempt to summarise in relation to case studies is problematic. As Bent Flyvbjerg writes, case studies often contain a significant, narrative element, which typically deals with the complexity, contrasts and dilemmas of real life. Therefore, good stories can be difficult or impossible to reduce to scientific formula or summarise into general thesis and theories (Brinkmann, Tanggaard 2010p) This also applies to this project.

Some of the findings appear as significant and while not an 'answer' to the problems addressed, they make certain problems more clear. The study indicates that privacy is not necessarily linked to physical boundaries, neither visual nor audial, but that certain mental mechanisms are at work, whereby the degree of security experienced, might influence the degree of privacy experienced. This issue is interesting, because privacy apparently is thus not only something which emerges in a closed room.

Another finding, which, seen in the rear-view mirror, may not be surprising, but which emerges clearly in this project is how people sense a room.

We ask the relatives what they see, hear and smell with the aim of getting a description of the room. The answers show us that the ways in which the relatives sense as well as experience the room are influenced by a considerable number of factors. One woman only sees the patient and does not pay attention to the surroundings. She does not notice that there are no windows in the dark corner, where her husband is lying. Another woman, whose child is placed in a bed with identical physical characteristics, becomes irritated by being cooped up behind curtains and really needs windows. The first woman spends approx. 1/2 hour in the ward every day, whereas the other woman is in the ward as much as absolutely possible. The first woman has not been 'a relative' to her husband previously, and for her it is a completely new and dramatic situation. The other woman has often been admitted with her son. It is not the first time she sees her boy very ill.

Observations reveal different and complex conditions, which influence relatives' perceptions – in this example it is about the time spent in the room, the emotional situation one finds oneself in and any previous experience with hospitals the individual may have had.

The word security emerges in different contexts. When relatives have spent an amount of time in the unit, then the machines are experienced as providing security and as a form of visual stimulation. The alarms of the machines are stressful, but as this is a technical question and the sounds can be removed, we are left with an element, which contributes positively to the experience of the room. But how can a machine without any aesthetic elements whatsoever contribute to a positive experience? The machines are experienced as providing security and as such are experienced as 'good' elements in the room.

The results of this explorative case study are embedded within the author's larger research project, which runs over 3 years. This part of the project has aimed at shedding light on the issues by using both qualitative and quantitative methods. This approach has shown weaknesses in research design and methodology and needs to be adjusted, in future work. The systematic observation needs to be more limited and precise so that the observations can be validated and form a solid fundament for statistical analyses. By way of example it would have been advantageous to focus on counting the number of people leaving and entering the room, and then link this empirical data to the relatives' experience of privacy with the patient. Thereby the observed type of emotions which were expressed between relatives and patients could be linked to empirical data on the experience of security in the different types of wards. A task with such definite limitations could be conducted even in situations with the widely varying activities in the wards.

This part of the total project points towards two things related to the qualitative method. Firstly, if one wishes to develop one's own approach to, for example observation, one needs to be prepared to set time and resources aside for validation. Secondly, in several cases it can be an advantage to employ already tried and validated observation methods. This saves resources in time as well as economy and can in several cases create a basis for comparison with other research results on an international level.

In future work with examining elements of physical space, which promote or obstruct interaction between patient and relatives, it will be interesting to continue developing methods, which can be used to get deeper into the complex problems. Particularly investigations of connections between emotions and perception, as well as the influence of security on the experience of space and objects in the hospital will be able to throw light on how we create space which can provide optimal frameworks for interaction between patients and relatives.

## **8. ILLUSTRATIONS**

Fig. 1: Overview of Intensive Unit in Randers.

Fig. 2: Overview of Neuro-intensive Unit Aarhus.

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