



Aspects of Healing Environments

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Introduction

The aim of this book is to give a working knowledge on the area of healing environments to students of architecture since there is no substitute for expertise and experience. The terms 'healing' & 'therapeutic' are complicated and extremely broad and refer to procedures that support the notion / concept of 'well-being'.

Aspects as "Design got right can transform people's lives," or "Design got wrong can be just a catastrophe" are well accepted today not only from architects but also from politicians and the public.

Patterns of care are changing. Most of the environment built specifically for health-care is often too unsuitable for ordinary people. The provision of hospitals is highly regulated and the users have specific needs. On the other hand, hospitals today can rent hospital space for the office-like or hotel-like parts of the healing process. But also the neighborhood has become a setting for care.

Bad design is particularly harming when it comes to hospitals and health care buildings. During the 1950's new ideas were developed to change the face of health care buildings in order to house the new and rapidly changing medical technology but much more concentrated on the user's needs. Patient-focused design became and still is the basic principle for planning and designing health care buildings, combined with an attempt to involve health care personnel in the design of their own hospitals.

Going back to the 1950's most of hospital architects deployed pure space, light and proportion just to attain the right environment. Recent illustrated examples rarely achieve a similar standard. As an exception, Medplan's Oslo's University Hospital carefully planned an internal hospital street to humanize a building of a considerable size.

An objective was also to change peoples' perception about a healing setting (a hospital) and to create the feeling of a public building. Today, health care buildings often embrace the role of civic buildings. This can be accomplished by transforming the building's context to focus on both healthcare and community activities as well as the well being of patients, staff, visitors and the community. The use of new technology means that many hospitals have to be reconfigured soon after completion, thus health care design must be more flexible to adapt to healthcare changes in the next decade and beyond.

This book applies to a range of perspectives which have emerged from different approaches—theoretical matters that examine the practice of hospital planning and design, the non-institutional care (e.g. the elderly), design concepts for parts of health facilities and small clinics, public spaces as healing places, as well as lighting and color (speed recovery, de-stressed factors) and the ancient experience on the matter.

Hospital architects and designers have to consider more the five senses; studies have indicated that a well-designed therapeutic environment helps people to recover quicker; thus reducing the running cost of the facility.

It is largely agreed upon that environmentally responsible design positively affects the human condition so the healthcare architect's prime duty is to create environments that are more "human".

Admittedly, the above facts do not mean that health facilities' designers, managers and users know exactly how to realize a healing environment. Every building must be tailored to site and climate, culture and context and most importantly, architects must be sensitive to the environment they are trying to create.

Fani Vavili

Illustrations (plans, drawings, photos) included in this book are from the respective authors' archives or otherwise indicated.

Acknowledgments The initial concept for this book had its inception at the UIA-PHG seminars. Over the last years most of the authors continued to develop the idea of the importance of healing environment to recovery of patients in health care facilities and in other settings as well.

I therefore wish to say a special thank you to my colleagues, most of them members of UIA-PHG, who included their thoughts and work in this book. We have met at UIA-PHG seminars and have discussed aspects of designing health care facilities and well-being.

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Designing an healing environment

Rosemary Glanville

Introduction

In the early days of design of health care buildings in the second half of the 20 Century, the emphasis was on clinical functional efficiency, which often led to rather institutional designs and buildings. A significant current interest is the contribution of the physical environment to healing and well being. There are two parallel strands of knowledge to underpin the design of healing environments: exploring the patients experience and implementing evidence based design. Understanding the patients experience is essentially about establishing what matters to patients and their visitors about the physical environmental design, but this is inevitably intertwined with the operational culture of the facility. On the other hand evidence based design of any research quality tends to be focused down onto specific single factors. The role of the designer will be to incorporate both strands of knowledge in the design of healing environments.

Early examples

Florence Nightingale famously wrote “the first requirement of hospital should be that it should do the sick no harm”. She went on to say that “little as we know about the way in which we are affected by form, colour and light, we do know this, that they have a physical effect”. Probably Florence Nightingale’s most valuable skill was her power of observation and her collection and analysis of statistics. When she was nursing at the Scutari hospital in Istanbul during the Crimean War in the 1850s she observed that patients in her non purpose-built hospital had

far higher infection and mortality rates than patients in the Brunel designed prefabricated pavilion hospital erected at Renkioi. Brunel, an engineer, had designed this hospital with a concern for hygiene and ventilation. Florence Nightingale in her later influential work in developing hospitals in the UK linked the environment with patient care outcomes and developed these concepts. In her pavilion hospitals she linked control of infection with ventilation systems, sunlight and views. She advocated an individual space for each patient in a well ventilated environment with plenty of air movement. Her requirements were a rectilinear pavilion with large windows along each side which would regulate the spacing of the beds on the wall sections between the windows. This achieved the indi-



Courtyard by the waiting area at the New Central Middlesex Hospital, London.

vidual space for each patient and ventilation shafts were incorporated into the walls to support the air movement created by fireplaces and chimneys.

100 years were to pass before the first significant study in this field by environmental psychologist Roger Ulrich, (Ulrich 1984) linked better patient outcomes with the view from the patient's window. He demonstrated through a study of matched pairs of patients recovering from surgery, one with a view of a brick wall and one with a view of trees, that the patients with the view of trees had better clinical outcomes; particularly earlier discharge, fewer analgesics and less demand on nursing staff.

From this beginning Ulrich developed a theory of psychologically supportive design. He identified stress as a major obstacle to healing which was manifested as helplessness, feelings of anxiety and depression (Marberry 1995). He advocated that healthcare facilities should be designed to support patients in coping with stress by providing a sense of control of their environment; access to social support and access to positive distractions in the physical surroundings. He saw nature as a positive distraction and that the visual contact reduced stress.

Evidence based design

The Center for Healthcare Design took up this concept of evidence based design and commissioned a study from Harvard University (Rubin et al 1998) of evidence linking the healthcare built environment with patient outcomes. 78,000 articles were scanned but only 84 met the criteria for research methodologies that provided findings as evidence. These articles covered a wide range of environmental issues such as windows, sunlight, artificial light, noise, air quality, temperature, humidity, ventilation, carpets, privacy and furniture arrangements.

For example sunlight has been shown to have beneficial effects on patients.

It was observed in studies of patients in a psychiatric unit in Edmonton, Canada (Richmond and Hayes 1998) that those patients in rooms on the sunny side of the building stayed on average 15% less time than those in rooms on the non-sunny side. A similar study took place over four years in a cardiac intensive care unit where four



A nice place to sit in the sun in a Macmillan Cancer Support Centre, UK

beds faced north and four faced south. In a comparison of directly admitted patients with similar diagnoses, those in bright rooms stayed 2.3 days on average, while those in dark rooms stayed 2.6 days.

The Planetree movement

However, an interest in the patients experience was developing in parallel but from a consumer perspective. In 1978, Angelica Theriot a patient in the US, reacted to her hospital experiences. While valuing the clinical technological environment, she felt a great lack of personalised care. She set up and promulgated the Planetree movement (<http://www.planetree.org/about/ourfounder.htm>) which was essentially about personalising, humanising and

demystifying the healthcare experience for patients and their families. She was essentially arguing for a different balance between provider focused and patient centred care through perceiving of the patients perspective.

The Planetree movement developed a number of themes including creating a healing partnership with care givers, designing a homelike appearance, barrier free buildings, providing support for patient dignity and encouraging family participation. One aspect of family participation was around nutrition. Patients and families should have access to the ward kitchen, which was to become a social meeting place for eating, with families cooking if they wished. Additions to the care regimes were complementary therapies and access to arts and nature. The concept



Patients garden at the Miyagi Palliative Care Centre in Japan



Day, dining, kitchen area at the centre of the ward at Nortalje Hospital, Sweden

of empowerment of patients and families through information on the patient's condition, lead to the development of information centres in Planetree units. The movement has grown in the US and into Europe and is now moving towards an accreditation framework.

In the UK a direct descendant of this philosophy can be seen in the Macmillan Cancer Relief (MCR) Cancer Care facilities built by Macmillan in partnership with the NHS. These units for outpatient, day care, chemotherapy, inpatient and palliative care, complementary therapies and information centres, link the care, culture and physical environment through their requirement for buildings to be holistic, inclusive, respectful and supportive. The designs are focused on the patient's experience, particularly with more homelike rooms for consulting, counselling, treatment and inpatient care, all with more control of the environment. Noise is combated with carpet and soft furnishings and privacy and dignity are embodied in the design.

Consumer perspectives

Trying to link consumer perspectives with the evidence base, the Center for Health Care Design commissioned a study on the patients experience by the Picker Institute (Picker Institute 1998) to create some "evidence" around the patient's experience. Focus groups of patients and families in ambulatory, acute inpatient and long term care settings were asked to define what the built environment meant for them. The ambulatory care experiences were: waiting is a fact of life, often feel sick or in pain during visit, have to get undressed and redressed. The acute care experiences were: hospital room is centre of their experience, loss of self and a sense of passivity, experience of sensory change due to medication. The long term care experience was: loss of independence, loss of control,

becoming passive, valuing activities and recreation.

All the groups were clear that the environment does have an impact on their experience. The findings were that what particularly mattered to consumers is an environment that:

- provides connection with staff,
- is conducive to a sense of well being,
- is convenient and accessible,
- provides confidentiality and privacy,
- allows family involvement in care
- is considerate of impairments
- is close to nature

Other aspects that were found important were first impressions, parking, lifts, accessibility and the ability to find one's way.



The Henri Dunant Hospital for the Fourth Age (80+) in Paris.

A study in the United Kingdom (Lawson and Phiri 2000), comparing old and new environments for two groups of patients, psychiatric and orthopaedic, found that both patient groups, treated in new or upgraded units, rated the same treatment significantly higher than that in old facilities. Patients in the new facilities reported less pain, as measured by the use of analgesics, and psychiatric patients showed less verbal abuse and threatening behaviour and were discharged earlier. Both groups felt that the environment contributed to their recovery and that colour and decoration influenced their well-being. Key issues of concern to patients included noise and the ability to control the environment, particularly with regard to ventilation and lighting.

Art in hospitals movement

There has been a growing movement in the US and Western Europe to enhance the environment with art works with countries such as Sweden taking the lead by allocating 1% of the building contract to art work. The first stage of a study at the Chelsea and Westminster Hospital in London looked at three aspects of the environment: visual art, live performances and the overall environment, with the aim to establish whether the visual and performing arts attracted sufficient general attention. A questionnaire investigation was set up to assess responses from 3 separate groups – patients, staff and visitors. There was a high level of response: all groups noticed the visual art; the live performances helped distract from immediate worries and changed mood; the overall environment contributed to changes in mood and easing of stress levels.

At Exeter hospital in the UK many local artists and sculptors have been commissioned to provide artworks placed throughout the hospital, in courtyards and in the grounds. An opinion survey (Scher and Senior 1999) was



Art installation in the atrium at the Chelsea and Westminster Hospital, London

undertaken of users' responses to art work including front line clinical staff. A significant majority of clinical staff responded to the arts as having a positive effect on their patient's morale; 33% consider art works to have a positive effect on the healing process; 25% consider they have a therapeutic benefit; nearly 90% consider the quality of the environment has observable effects on users and art makes a considerable contribution to this. A further finding is that as most art works have been fitted retrospec-

tively they do not always have optimum day lighting or artificial lighting or optimum viewing places for standing, sitting and bed fast users. Earlier integration of artwork into the design process would be an advantage.



Outdoor sculpture in use at Exeter hospital, UK

Access to outdoor gardens

Another study by the Center for Health Design (Marcus and Barnes 1995) shows that people in medical settings use available outdoor gardens for therapy and emotional healing. Gardens in a range of settings in healthcare buildings from courtyards to roof gardens are used to relax, talk, eat, stroll, wait, visit with a patient, allow children to play as well as for outdoor therapy. Patients in response to the perceived therapeutic benefits reported that they felt different, were more relaxed, experienced a change in mood and had been able to think more clearly. Sensory stimulation eg trees whose foliage moves easily, meandering pathways and features to attract birds and butterflies, that attract attention without any effort, was valued.

Developing the evidence base

More recently there have been two meta analyses of the body of knowledge of evidence based design, one in the USA and one in the UK. The US study (Ulrich and Zimring 2005) used the same research quality criteria as the Harvard study and found 600 relevant studies up to 2002, which they state demonstrates that “improved physical settings can be an important tool in making hospitals safer, more healing, and better places to work”. In the review these studies are grouped under 4 themes around: reducing staff stress and fatigue, improving patient safety, reducing stress and improving outcomes, improving overall health care quality. In their conclusion they advocate that the evidence suggests a combination of physical environment attributes should be incorporated into health building design: single rooms, quieter, positive distraction, way finding, improved ventilation, natural lighting, reduced staff walking and fatigue. Above all else Ulrich has been advocating single rooms in hospitals.

The UK study (Phiri 2006) looks at all studies of research quality of the relevance of the physical environment in health care design up to 2005. This study is arranged under 5 themes which relate to where the “evidence” can make a positive contribution: infection, accidents, medical errors, violence, views, nature and outdoors. However, the analysis takes account of the knowledge of the impact of the physical environment from a wider perspective than the designer and traces a relevance for the commissioner of services and facilities and for those who will be operating them.

Both these studies have moved their focus somewhat from the physical environment elements to more operational issues and patient and staff outcomes. In some cases the evidence seems to advocate some quite insti-



Entrance Foyer at Ariake Cancer Centre in Tokyo, Japan

Balconies in the ward day rooms overlooking the atrium at the Groningen Hospital, Holland



tutional features such as sealed windows. The environment is not seen as a contributor to healing in its own right. So what has happened to physical environment elements of design?

Agnes van den Berg in her review of the evidence (van den Berg 2005) is still focused on the environment and focuses on the "four 'classic' elements of healing environments: nature, daylight, fresh air, and quiet." She also points out that these aspects of design extend to all building types and that there is evidence of the benefits outside of clinical outcomes, but she only includes quantitative studies and excludes qualitative studies about preferences and perceptions. This is a useful meta analysis as the

information is easily accessible arranged as: topic, clinical evidence, other evidence, discussion and summary. There is also an abstract of each of the studies referenced

Conclusions

It would seem that designers can usefully use both types of information in their design approaches. The more environmental psychological approach of measuring the effects of the environment on patients depends largely on clinical measurement of the reactions of the body. What patients and families perceive of the environment is more to do with their personal experience. The theory of supportive design joined the two ideas for a time but now

the evidence seems to be used in a way that drifts away from aspects of the physical environment towards more operational aspects. As Kirk Hamilton points out (Hamilton 2005) the difficulty for designers is perceiving of and keeping abreast of the growing body of “evidence”, alongside the parallel critical agendas such as future flexibility and sustainable design.

References

1. Nightingale F., 1863, Notes on Hospitals, reprinted in vol 3 of Williamson L. (ed) 1999 Florence Nightingale and the Birth of Professional Nursing. Bristol: Thoemmes press.
2. Ulrich R., 1984. View Through a Window May Influence Recovery from Surgery. *Science* vol 224, April 1984.
3. Beauchemin K.M., Hays P., 1998, Seeing ward design, *Hospital Development*, October 1998.
4. Ulrich R., 1990. Effects of Healthcare Interior Design on Wellness: Theory and Recent Scientific Research. In Marberry SO. (ed) 1995. *Innovations in Healthcare Design*. Van Norstrand Reinhold pp 88-104.
5. Rubin H., Owens A., Golden G., (1998), Status Report: An investigation to determine whether the built environment affects patients' medical outcomes, Center for Health Design.
6. Planetree movement (<http://www.planetree.org/about/ourfounder.htm>)
7. The Picker Institute. 1998. Working paper: Consumer Perceptions of the Healthcare Environment: An investigation to determine what matters. Center for Health Design.
8. Lawson B., Phiri M., 2000. Room for Improvement. *Health Service Journal* 20 January, 2000.
9. Scher P., Senior P. (1999) The Exeter Evaluation, Arts for Health, faculty of Art and design, The Manchester Metropolitan University.
10. Cooper Marcus C, Barnes M., 1995, Gardens in Healthcare Facilities: Uses, Therapeutic Benefits, and Design Recommendations. Center for Health Design.
11. Ulrich R. Zimring C, 2004, The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity, Report to The Center for Health Design for the *Designing the 21st Century Hospital Project*.
12. Phiri M., 2006, Does the physical environment affect staff and patient health outcomes? A review of studies and articles 1965–2005, DoH.
13. Van den Berg, A.E, 2005, Health Impacts of Healing Environments: A review of evidence for benefits of nature, daylight, fresh air, and quiet in healthcare settings, Wageningen University and Research Center, Wageningen, The Netherlands.
14. Hamilton, K., 2005, Evidence based design and the art of healing from The Architecture of Hospitals, NAi publishers, The Netherlands.