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The Ethics of Healthcare Architecture

by Diana Anderson

THE ARCHITECT'S MASTER

Over the past few decades, the way hospitals are designed, built, and operated has evolved with projects exploring new ways to deliver innovative and cost-effective models of care. Despite this progress, one question remains constant: whose voice should be prioritised when funding and designing hospitals and health services? In other words, who are we designing hospitals for – the clinicians, the patients and their families, or the administrators? A corollary to this is how strongly the healthcare architect's expertise is valued, and the possibility that the state of healthcare architecture has come under moral analysis. While current literature questions whether medicine has overstretched itself,[1] has architecture pushed enough boundaries?

In today's healthcare climate there is increasing pressure on doctors to serve two masters.[2, 3] The dual agency of physicians – who bear professional obligations to society and fiduciary duties to individual patients – is not unlike the role of the healthcare architect and can remain entirely opaque to the users of a space. As one of the learned professions, architecture has a responsibility to act in the public interest, but architects can often feel that they are simply delivering a service at the client's request. The question arises: how do architects achieve a balance between our learned craft and providing best-practice services for our clients? Has the movement towards scientific, evidence-based design changed the architect-client dynamic? Is a further paradigm shift needed towards design quality measurement? In this article I attempt to leverage divergences into a dialogue that can help inform the broader field.

Louis Kahn stated that 'once challenged, the architect will find completely new shapes and means to produce the hospital, but he cannot know what the doctor knows.'[4] Potential solutions for closing the gap between design intent and final user experience include a convergence of design and health expertise and an expansion of the healthcare architect's role to encompass social agency and public health.

THE ETHICS OF HEALTHCARE ARCHITECTURE

What are the ethical boundaries for healthcare architecture, ensuring the hospital building itself does no harm? While bioethics has grown as a field of study since the 1960s, ethical implications within healthcare architecture have been relatively unexplored in academic training and professional practice.

Analogous to the medical profession, architects have ethical and professional responsibilities to protect the health, safety, and welfare of others. Architects, like doctors, take an oath to serve and protect the public good, aiming to design for a more beautiful world. The American Institute of Architects' Code of Ethics and Professional Conduct states that members should uphold human rights in all their professional endeavours, designing 'buildings and spaces that will enhance and facilitate human dignity and the health, safety, and welfare of the individual and the public.'[5] Perhaps an enlightening point of entry to a better understanding of professional ethics in general is the difference between the design and healthcare professions relative to the agency each gives to their primary masters (i.e. clients and patients, respectively).

Fundamental ethical principles which might apply within a healthcare design framework include respecting autonomy of other persons, beneficence (bringing about good in our actions), non-maleficence (not intending to harm), and justice (treating all people equally, fairly, and impartially). In medical ethics, the physician's guiding maxim of 'first, do no harm,' can be applied to healthcare architecture, ensuring design strategies which do good (beneficence). Further lessons may be learned from historic designs in which the healthcare building itself was used as a form of treatment.[6]

EVIDENCE: A PARADIGM SHIFT

The impact of spatial design on our health is well documented. A 1984 study launched the field of evidence-based design, demonstrating that post-operative patients with a view of nature, versus a brick wall, required less analgesia and had shorter lengths of stay.[7] A subsequent meta-analysis supports single-patient rooms for infection control, views of nature for lowering stress, and daylight for regulating circadian rhythms (considered important in delirium prevention).[8] Evidence-based design combines the architect's imagination, creativity, and judgment by providing empirical data on design elements.

But while this now over-thirty-year movement for measuring design quality exists, the gap between practice and end-users still lacks a consistent bridge. The old adage of 'measure twice, cut once' no longer holds true for the transition towards an evidence-based practice. Consider a 'measure again, cut repeatedly' model, given the notion that good measurements and sound methodologies should be replicated and be generalisable across multiple projects without redoing the data-gathering phase; analogous to a clinical trial.

While architecture can be a health-promoting feature, spatial design can also be potentially harmful. Poor healthcare design can cause distress to patients, families, and staff. Many hospital facilities are not places that encourage healing; constant noise, dark or monochromatic colour schemes, and unwelcoming spaces for families to stay with loved ones can further intensify stress. The documented harmful effects of poorly planned spaces, such as falls, infections, noise, and even medical errors, highlights an increasing shift in healthcare design strategies.[9]

While hospital architecture and medical practice have progressed alongside each other throughout history, they have rarely converged, and any convergence is relatively recent. The asylums of the 1800s set a precedent for the 'building-as-treatment' concept. This was underpinned by the idea that no treatment could take place unless patients were removed from their home environment. Although the ethical principles of patient autonomy and personal freedom are routinely set aside by this type of architecture, the ethics of psychiatric facility design are firmly rooted in beneficence. In 1854, Dr Thomas Story Kirkbride changed the approach to mental-health architecture in the United States, emphasising the need for the moral treatment of the mentally ill through the incorporation of fresh air, ventilation, sunlight, and land.[10] Similarly, the tuberculosis sanatoria built in the nineteenth and early twentieth centuries further illustrate hospital design as a contributing factor in treatment, planned to give patients access to nature in order to aid their recovery and prevent the spread of disease.

While design cannot necessarily treat disease, it can be an important tool in preventative and therapeutic care strategies. Evidence-based design practice has inspired the emergence of modern day models for dementia care that promotes autonomy. Research connecting architecture with neuroscience is increasing, and has demonstrated an overlap between regions of the brain affected in the early stages of Alzheimer's Disease and the areas important for spatial navigation.[11] By collaboratively researching cognitive mapping, design solutions have the capability to combat confusion and spatial disorientation for people with dementia.[12]

An example of neuro-architectural research, translated into current design practice, is De Hogeweyk, a 'dementia village' in The Netherlands which promotes permissive wandering. Residents are free to visit amenities such as shops, a café, and pub. Staff report decreased agitation and medication use.

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More common in dementia units is the building itself acting as a restraint, for example, by concealing exit doors. Dark floor patterns in front of doors and elevators, perceived as a hole or void by some with cognitive impairment, can induce fear of leaving.[13] Although freedom of movement and meaningful activity within village settings are preferred, these are not universally-adopted design strategies.

Questions that need addressing in the advent of an evidence-based paradigm shift include: who should be responsible for keeping up to date with the evidence? Who should be responsible for gathering it? Who owns the data and should it be accessible to the broader profession, comparable to clinical medicine? Should research methods be taught in healthcare-design programmes in order to allow for architects to search and critically appraise the literature, allowing practitioners to better substantiate design decisions to clients? While there is a business case for better hospital design,[14] grant-funded architectural research is still lacking. Healthcare architecture requires additional clarity on the ethics of research-based design. Part of our duty, as architects, is to bring this evidence to the attention of clients and thus strengthen their understanding and acceptance of our expertise. We need to recognise, however, that even assessments about the strength and quality of evidence are value judgements, and are influenced by culture and context, including cost constraints.

Architects often express reservations about measuring design quality. We hear statements such as: 'some projects are more complex than others', 'it will make us legally liable if we expose our errors', 'it just won't be fair', etc. These are the same objections clinicians had about measuring medical quality over a century ago. Today, all medical and surgical procedures are systematically measured as the basis for how the profession evolves. Clinicians argue for an evidence-first approach to policy; complete with rigorous evaluation prior to widespread implementation. The trend towards 'post-occupancy evaluations' that study as-built environments is positive, but limited when conducted by the same client or design firm that was involved with the construction of the building itself. Such studies may be subject to bias, in addition to being restrictive with regard to the sharing of findings.

AGENTS OF SOCIAL CHANGE

Physicians in practice are being enjoined to consider society's, as well as each patient's, needs in deciding on how to deliver care.[15] The healthcare architect's status should also be seen as an agent of public health. Architects frequently make decisions that have implications for policy and social change. Healthcare architects are experts in projecting client needs, contributors to models of care, safety advocates, and are aware of resource limitations. Architects can help control costs by choosing economical ways to deliver optimal design decisions to clients, and in turn impact health and care for users. We must be open to client preferences and must recognise that one's own professional opinion is open to challenge where controversy or disagreement exists.

Disclosure of design decisions, and their relation to costs and outcomes, is consistent with architects' professional responsibilities to healthcare clients and society. While in medicine the notion of a real-time appeals process for triage decisions is not always feasible given the urgency of such decisions, architecture has the advantage of time. Physicians should be able to explain why and how they make allocation and treatment decisions when the need arises, even if there is no standardised, system-wide approach to making them. Design decisions also require transparency in terms of risks and benefits.

While disclosure and transparent communication have long been considered 'methods of respecting patients' autonomy and capacities for self-reflection in clinical practice,[16] these methods also empower the public and provide a voice in the formulation of policies and guidelines. A similar process can make healthcare architecture more efficient, accurate, and equitable through better needs assessments, more effective audits, and more representative research. Promoting accountability for design reasonableness may, in turn, enhance trust in architects' expertise, thereby increasing our abilities to impact care delivery and outcomes through spatial design.

Physicians are increasingly prescribing social interventions; mobilising the established collective strengths that exist within many local communities to improve health and wellbeing. Architects can support design and planning as social determinants of health. These evolving activities, in which clinicians and architects are choosing to focus their energies, are connected. Physicians are searching for ways to make clinical practice more effective and more doable, lobbying for change. Architects should also play a role in policy, not only at the scale of rooms and buildings, but at the urban scale as well.

TOWARDS ANASTOMOSIS

How might clinicians and architects encourage the emergence of new modes of practice? Increasingly, professionals in healthcare and design seek shared knowledge and expertise – a convergence of career models. An anastomosis represents the connection of two normally divergent structures. In medicine this can mean blood vessels, or other tubular structures such as loops of intestine. This connection of separate systems then forms a network. The field of healthcare is changing; medicine is increasingly recognising the benefits and value of the social sciences and humanities in the shaping of clinical practices. Architecture is progressively adopting the model of evidence, scientific methodology, and simulation within the domain of hospital design. To consider therapeutic design as a possible form of treatment requires the participation of both clinician and architect – a true anastomosis of disciplines.[17]

Looking ahead, architecture is in the early stages of integrating informatics into the design process, while the development of interactive environments is on the horizon. Virtual reality is already being studied as a means to create different contexts for patients, allowing them to walk through calming locations, with the hopes of decreasing delirium, procedure anxiety, and post-intensive care syndrome.[18,19] Design projects which seek to increase patient mobility through a better use of hallways and alternatives to bed rest are also currently being explored. (There is often no therapeutic value to strict bed rest, leading to muscle atrophy and overall de-conditioning.)[20] For some, in the absence of transformative treatments, design might supersede medication.

As an architect and physician, I believe the design of our healthcare buildings is an ethical construct comparable to the care we provide patients. Yet, despite knowing how to design better hospitals, building them is still a challenge. Because hospitals exist for a long time and are expensive to construct and operate, it is vital to use available empirical evidence to guide design. Medicine is being rethought. The process of rethinking healthcare architecture is a necessary challenge. We need to define more clearly how the application of a science-based design model adds value and where it does not. Future research is needed to inform design policies and practices.

The present analysis is intended to stimulate a broader discussion of the complexities of common decisions in the design of healthcare spaces. Dialogue regarding these pressing issues and further research into these complex areas holds promise for improving architect-client relationships, patient-centred outcomes, and the efficiency of healthcare delivery in settings of limited resources. By connecting health to design, architects have moved beyond traditional bricks and mortar to research-based practice. Implementing a clinically- and ethically-informed translational design process could ensure our hospital buildings harm less and heal more. While architecture itself does not necessarily provide a cure, hospital design can be a tool for healing and the enhancement of quality care.

Notes

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Image

Example of a dementia care facility whereby the building itself acts as a restraint by concealing exit doors. Photo by the author.

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