FUTURE DIRECTIONS IN DESIGN FOR MENTAL HEALTH FACILITIES

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HASSELL
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Future directions in design for mental health facilities

Community Recovery Program Mental Health Facilities, Melbourne, Australia. Imagery by HASSELL.
Mental health in our community

According to the World Health Organisation (WHO) “Mental health is a state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community. In this positive sense, mental health is the foundation for individual well-being and the effective functioning of a community.”

WHO estimate that more than 450 million people around the world suffer from mental disorders. By 2030, depression will be the number one cause of disability, outranking ischemic heart disease and diabetes.

In addition to the impact mental illness has on the sufferers, there is an enormous economic cost to society. The annual cost of mental health to the Australian economy is estimated to be $20 billion and in England, £100 billion.

As a significant minority of the population is affected, it is incumbent upon the design industry to positively contribute to the built environment of health facilities, and to maximise the restorative powers of place and space more generally.

Evidence Based Design

The latest trends in mental health architecture favour domestic scaled development, maximising freedom with community care models where possible. Access to nature and abundant light are the predominant features in new developments. However, funding models, siting, and long standing clinical work practices present challenges for designers to incorporate elements that are known to be beneficial. The tool at hand to overcome these obstacles to implementation is Evidence Based Design (EBD).

EBD can assist designers to understand the causal links between environment and treatment. However, there is still a long way to go. While the Centre for Health Design in the United States has collated more than 2000 papers on EBD, only a handful of these specifically address mental health. The evidence base, therefore, must come not only from academic and clinical research, but also from built project outcomes and collaboration with clients and user groups, including patients.

HASSELL presents here an examination of the trends and potential future directions, as well as principles of design for a successful mental health facility, based on our project experience and research into EBD.
02 A brief history of mental health

From magical interventions to community based care

Evil spirits
Historically, mental health was considered to be the manifestation of evil spirits, and was dealt with by magic, prayer and physical interventions. Those that did not respond to treatment were cast out and punished. It was not until the sixth century BC that humans attributed their actions and thoughts to sources within themselves.4

During the fifth century BC, Hippocrates suggested that exercise and tranquility would be more beneficial than exorcism and punishment, but humane treatment was abandoned during the Dark Ages when witchcraft and incarceration became the norm.4

Bedlam
The earliest recorded and possibly most infamous asylum, Bethlem Royal Hospital in London, was established in the fourteenth century. Despite occupying several sites, each intended to improve the conditions for patients, Bethlem hospital is commonly cited as a place of horror, exemplifying the terrible conditions endured by those on the margins of society, and giving rise to “bedlam” as a term for chaos and confusion.5

The Enlightenment
In reaction to the imprisonment model that was failing the mentally ill, physicians began to explore the theory that patients could recover from mental illness, if accommodated in benign environments within smaller facilities that had access to nature.

From the time of the Enlightenment, incarceration of the insane was deemed inappropriate and over one hundred and fifteen asylums were built in England.6 Similar institutions were built in North America, Europe, and Australia7 and it was during this wave of reform that the grand Victorian asylums, with symmetrical form and layout, access to natural light and ventilation, generous circulation spaces and sprawling grounds of parks and farms came to dominate the housing of the mentally ill.8,9

Treatment Revolution
During the 1950s, significant new treatment options were developed that allowed faster and more effective treatment of the mentally ill, although this was countered by a political movement that believed psychiatry was a tool of social reform. Electro-convulsive therapy, and then psychopharmacology, enabled a post-war therapeutic transformation that began to dramatically shorten the length of stay for patients.6,10

Community based care
By mid century, the community care model of treatment was generally accepted, deinstitutionalisation was embraced, and the dismantling of the large mental institutions was underway. More clinics and outpatient facilities in general hospitals were built for psychiatric patients, and by the late 1970s the median length of stay in a mental hospital admission ward had fallen by fifty percent.6

Many of the larger mental institutions continued to decline throughout the second half of the 20th century, with the era of grand asylums for the insane effectively ending in Australia in 2000 with the closure of Royal Park in Victoria.

Small scale residential and community facilities now dominate the mental health landscape.
Each iteration of development in mental health treatment throughout the years has represented an increased understanding of the complexities of mental health. While buildings have been small, then large (then small again), grounds have been non-existent then sprawling, and care has been institutionalised then community based, architects have intuitively understood that the built environment has an effect on patients.

**Treatment**

Mental health services delivery is increasingly reliant on the community based care model. With the current underlying philosophy for mental health treatment - to minimise restraint – providing the basis for this model, it seems logical that the trend for as much treatment as possible to be carried out in the home and in low acuity settings will continue.

This has the additional and not inconsiderable benefit of reducing costs for government and private providers alike. This may mean a greater reliance on drugs to suppress symptoms, and may also mean a further re-organisation of the community mental health sector.

**Building design**

The trend away from large institutional buildings is almost complete, with treatment of the vast majority of mental health illnesses being offered in domestic scaled residential facilities (sometimes on hospital sites), community outreach and outpatient facilities, with an increasing emphasis on personal freedom within the limits of the acuity of the illness.

**Urban and site design**

In conjunction with trends in treatment, the form and location of mental health facilities are likely to change also, as a result of emerging urban design policies and practices.

At the individual development scale, the courtyard model, which offers access to external spaces, is increasingly prevalent in supported living environments. There may also be a move toward higher density development that fits into the urban form of our cities, in line with current trends in urban policy.

There is an increasing amount of research being undertaken into the links between urban design and health. The growing incidence of diabetes, heart disease, obesity and mental illness has been related in part to poor city design. A ‘healthy cities’ movement is gradually gaining momentum within the health and design industries to promote the key urban design principles behind successful cities as identified by a report by the City of Melbourne\(^\text{11}\) : Density; Mixed Use; Connectivity; Character; Adaptability, and Public Realm.

A 2009 CABE report\(^\text{12}\) (Future Health: Sustainable Places for Health and Well-being) surmises that good health is determined by a range of factors — many of them linked to the quality, accessibility and sustainability of our physical environment.

Densification is a significant political issue in Australia and is strongly endorsed in all of Australia’s major capital city strategic planning documents. However, while low density is much criticised, it should be remembered that very high density also has a downside.

A report written for the National Heart Foundation of Australia (NHF)\(^\text{13}\) determines that higher density development can have a detrimental effect on mental health through the location, design and construction of housing.

Stressors that come from poor design - crowding, noise, poor indoor air quality and light - can all adversely contribute to the home environment. Evidence also increasingly suggests that people with access to quality green space are healthier. Being outside can promote mental well-being, relieve stress, overcome isolation, improve social cohesion and alleviate physical problems.

While the NHF study does not address accommodation for the mentally ill, the results illustrate the importance of urban design for the general population and can inform design for those already suffering mental illness.
Drivers of change in the healthcare sector are many and varied - the ageing population, funding models, technology, clinical practice developments, procedural advances, and social, environmental and political imperatives, amongst others.

Some of these issues will affect built outcomes and some will not. Prediction is fraught with danger, but a number of ideas appear to be changing the way clients and designers approach the design of mental health facilities.

**Suitable sites for mental health facilities**

Clients often find it hard to secure sites because of the stigma associated with mental illness. At the same time, hospital sites are subject to huge pressures on land. It may be possible, therefore, that there will be a return to larger, higher and more dense building types.

However, the architectural challenge may be to make the buildings feel smaller (certainly from within), by breaking them into smaller units, like houses, so that identity is maintained and a large impersonal scale avoided.

**Different bedroom configurations**

There is a great focus currently on single bedrooms, with all the attendant benefits – privacy, noise reduction, space, communication etc. This is in part a reaction against the very large 1950s hospital mental health wards, which have now been eradicated. However, shared or adjoining rooms can be beneficial in treatment in child and adolescent mental health.

In some instances, shared or adjoining connected rooms may also be a viable option with adults. Patients with conditions such as neurosis and eating disorders may benefit from group treatment with larger shared rooms to foster a sense of group responsibility. This is an area which requires further research. The HASSELL designed Prevention and Recovery Care facilities in Melbourne have a variety of bedroom configurations to give greater treatment options.
More specialised facilities

In Victoria, specialised facilities for particular age groups are becoming more common. The Youth PARC in Melbourne is one of the first in the state for this particular age group, and it is anticipated that this will be followed by gender separated units.

Another project, the Coral Balmoral facility in Melbourne, is a specialist psychiatric treatment facility for veterans, and is considered one of the foremost trauma units in Australia. It is an early example of the courtyard model, and includes inpatient, day care and administration. There are common spaces, dining, lounge and multi-purpose room between the two patient courtyards. The inpatient building was designed to take another floor in the future to ensure adaptability of the facility.

Co-location with other facilities

Co-location is a trend in primary health care delivery that combines leisure, retail and residential multi-use buildings in order to maximise efficiencies of services, but also to foster a less institutionalised sense of place. The co-location of different health services is also gaining currency, with emergency departments linking to mental health facilities to ensure smooth transitions for agitated patients.

The Mental Health Centre at Fiona Stanley Hospital in Perth enables mental health patients coming to the Emergency Department to be recognised early and streamed to a specialist facility. This reduces the workload and congestion in the ED and allows speedier and more effective treatment for mental health.

The Gold Coast University Hospital Mental Health Unit is co-located with a major teaching hospital and has four varying acuities of patients in one building, including forensic and a specific area for women and children. Patients accompanied by a case worker have a dedicated admissions suite to avoid congestion in the Emergency Department.

Technology

It is likely that technology will affect mental health design considerably in the future.

In buildings for dementia sufferers, motion and pressure sensors enable staff to know when a patient is out of bed. It is possible that this could overcome the intrusive and labour intensive checks throughout the night on acute patients in mental health.

Individual GPS devices may help to monitor patient movement, and remote diagnosis and monitoring may become prevalent.
Design can make a difference

From an historical viewpoint, architecture and the treatment of mental health are connected, either by design, or lack thereof. The trends have come and gone, but each has contributed to an understanding of treatment, and can be viewed as an ongoing database of evidence on which designers can draw.

It is easy to understand general physical illness and what we might look for in our environment to aid recovery, but most of us, fortunately, have never experienced severe mental disorder. Engagement of the patients and staff in the design process enables a more thorough understanding of the complex issues within a mental health facility.

There is a need for some simple clinical guidance to help designers: how can we design therapeutic environments if we don't understand the condition we are designing to mitigate?

Another important tool in the planning of quality healthcare environments is Evidence Based Design (EBD). It is only through data and the experiences of clinicians and patients that an understanding of the implications of design can be understood.

Principles of design for mental health

Based on the key attributes of a healing environment outlined in Malkin’s book “Hospital Interior Architecture” and our own research into EBD and experience in designing facilities, HASSELL has identified the critical attributes of a successful mental health building.

These attributes are:

- Light
- Elimination of environmental stressors
- Safety
- Security
- Observation
- Avoidance of visual disturbance
- Colour
- Group interaction
- Access to nature

Light

It is well documented that daylight, artificial light and sunlight can all provide significant health benefits for the general population, as well as mental health patients in particular.

There is research to suggest that bright light—natural or artificial—can improve health outcomes such as depression, agitation, sleep, circadian rest-activity rhythms, and length of stay in dementia and bipolar seasonal affective disorder (SAD) patients. Further to this, studies show that exposure to morning light is more effective than exposure to evening light in reducing depression.

Using light to reduce depression is a relatively inexpensive intervention that has been shown to yield consistently positive results. While artificial lighting can be manipulated throughout the design process, the initial layout of rooms to face east, allowing natural daylight in patient rooms in the morning, can make a significant contribution to patient wellbeing.
Elimination of Environmental Stressors

In the pursuit of recovery, mental health patients must first be comfortable. Noise, glare, and air quality are among the many environmental variables that must be considered in the design of healthcare facilities.

Several research studies have identified that noise is a major cause of sleep disturbance, and there is evidence to suggest that noise increases stress in patients, inducing high blood pressure and increased heart rates. This is particularly pertinent in double or multiple bed rooms where noise is generated by other patients and staff.\(^{16}\)

The issue of multiple versus single rooms is more complex than noise however, with social benefits and surveillance to be considered. Thus, design interventions that minimise or eliminate noise throughout the facility, regardless of bedroom configuration, are important.

While natural light has been identified as crucial in maximising recovery potential, flooding rooms with too much light in inappropriate locations is likely to cause discomfort, as is poor indoor air quality. Research particular to indoor air quality in psychiatric facilities is not well studied, but an equivalent study in commercial buildings shows that improved indoor environment quality contributed to reductions in absenteeism due to asthma, respiratory allergies, depression and stress.\(^{17}\)

Way finding is also a critical element in the elimination of stress for both patients and their visitors, who may be unfamiliar with the facility. Researchers found that patients in a hospital that provided orientation aids on admission were more self-reliant and made fewer demands on staff than uninformed patients, who rated the hospital less favourably and were found to have elevated heart rates.\(^{9,16}\)

This was backed up by a study in a US hospital that attributed a significant amount of time and money to direction-giving by staff; an estimated 4500 staff hours, approximately equivalent to two full-time positions.\(^{16}\)

In response to these types of inefficiencies, health care facilities are now developing way finding systems to include administrative and procedural levels, external cues, local information and overall space planning.
Concern for patient safety and security is a constant factor in all design for mental health. These principles are significant and intrinsically linked.

**Safety**
Safety specifically addresses the need to keep staff and patients out of harm's way through physical elements in design, while security allows the freedom of movement for patients within the facility without compromising treatment and the safety of the patients, staff, and the community.

There are significant crossovers between these two categories, but fundamental safety issues are addressed through anti-ligature design, anti-slip surfaces, universal access, ergonomics and adherence to all the relevant standards in building construction.

**Security**
Good security design allows the freedom of movement for patients within the limits of their condition. The more serious the illness, the more overt will be measures to ensure patients do not harm themselves. Design must also consider the protection of staff, other patients, visitors and members of the public.

It is possible for individual facilities to have different degrees of restraint in a single building. Acute units may have secure isolation rooms to deal with violent patients, but variation in acuity design is also applicable to residential buildings. In the Prevention and Recovery Care Units HASSELL has designed in Melbourne, for instance, there are two different bedroom layouts providing different levels of observation.

The degree of restraint for patient safety and security is a clinical judgement. A comprehensive understanding of each patient profile will include consideration of the risk of self-harm, the likelihood of absconding or violence and the likely progress towards rehabilitation. A menu of architectural options for acuity may assist clinicians when considering what is best for an individual patient.
Observation
Closely related to security is the issue of observation, which is ideally achieved through passive surveillance. Innovative ways to increase the potential for staff to check on patients can be seen in a number of new facilities.

Providing secure courtyards is becoming the standard approach, but there are other ways of maximising observation without intruding on the patients. Wide corridors with regular gathering spaces enable a low key approach to observation, and single loaded corridors with uninterrupted views to external spaces also allow staff to continue with their work while keeping an eye on activities throughout the facility.

Avoidance of visual disturbance
Visual disturbance can take many forms, but mental health facility planners generally strive to provide a calm environment with ample space and minimal clutter – through colour, light, furniture and art. Anecdotal evidence collated through user group interviews indicates that a calm environment free of technological distractions allows patients time and space to reflect.

Something as simple as art selection can contribute to a calm atmosphere: studies on art in hospitals suggest that, in addition to benefits from access to nature, patients respond positively to art depicting nature and negatively to chaotic abstract art. There is also evidence that inappropriate art styles can increase stress and worsen other conditions.16

Colour
The colour most beneficial in making people feel calm is blue. Studies have shown that brighter colours: (whites, light grey, and lighter colours) are found to be less arousing, and less dominant than darker colours, grey and black.16

However, the calming effect is not the only benefit of astute colour selection – colour coding the environment can greatly assist in orientation19 and can be used as part of the way finding strategy.
Group interaction
The value of social interaction for psychiatric patients is well researched, and varies according to the type of illness and the demographic of the patients. There are two aspects to socialisation – with other patients, and with visitors.

Culture has a large bearing on how people behave in mental health settings - privacy with and for family are critical. Social interaction with family and friends is an important element in many treatment programs, and research indicates that single rooms are significantly better than multi-bed rooms for accommodating visitors. Multi-bed rooms may even deter family presence because they greatly reduce privacy and restrict visiting hours.\textsuperscript{16}

While some patients sharing the same bedroom provide each other with social support, research shows that the presence of a roommate is more likely to be a source of stress rather than support.

There is also strong evidence that where single bed rooms are provided, patient to patient interaction can be increased, and stress levels lowered, by providing lounges with comfortable furniture arranged in small flexible groupings.\textsuperscript{16}

Access to outdoor spaces that are large enough for different social and cultural groups to inhabit is also important. Smokers, indigenous groups, refugees, antenatal women and dementia patients all have particular requirements that may necessitate separation, privacy, or security.

Access to nature
Many recently designed mental health facilities focus strongly on links to nature, through both views and physical interaction. A significant body of research is dedicated to this area of health design, consistently finding that viewing nature induces positive emotional and physiological changes and diminishes negative emotions through changes in blood pressure and heart activity.\textsuperscript{16}

Post-occupancy evaluation of the Gold Coast University Hospital, where the mental health facility is based on the courtyard model, is indicating that patient stay has been reduced significantly as well as the incidence of violence. Other studies indicate that patients and family who use hospital gardens report positive mood change and reduced stress.\textsuperscript{16}

As an added bonus, staff in facilities with gardens can benefit from nature. Gardens in the workplace can reduce stress and improve outcomes through fostering social connection and providing opportunities for positive escape from stressful clinical settings.

Conclusion
Mental health facility design is constantly evolving but the principles outlined here provide the basis for a humanistic solution that seeks a calm and healing environment for the vulnerable in our society.
06 References


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