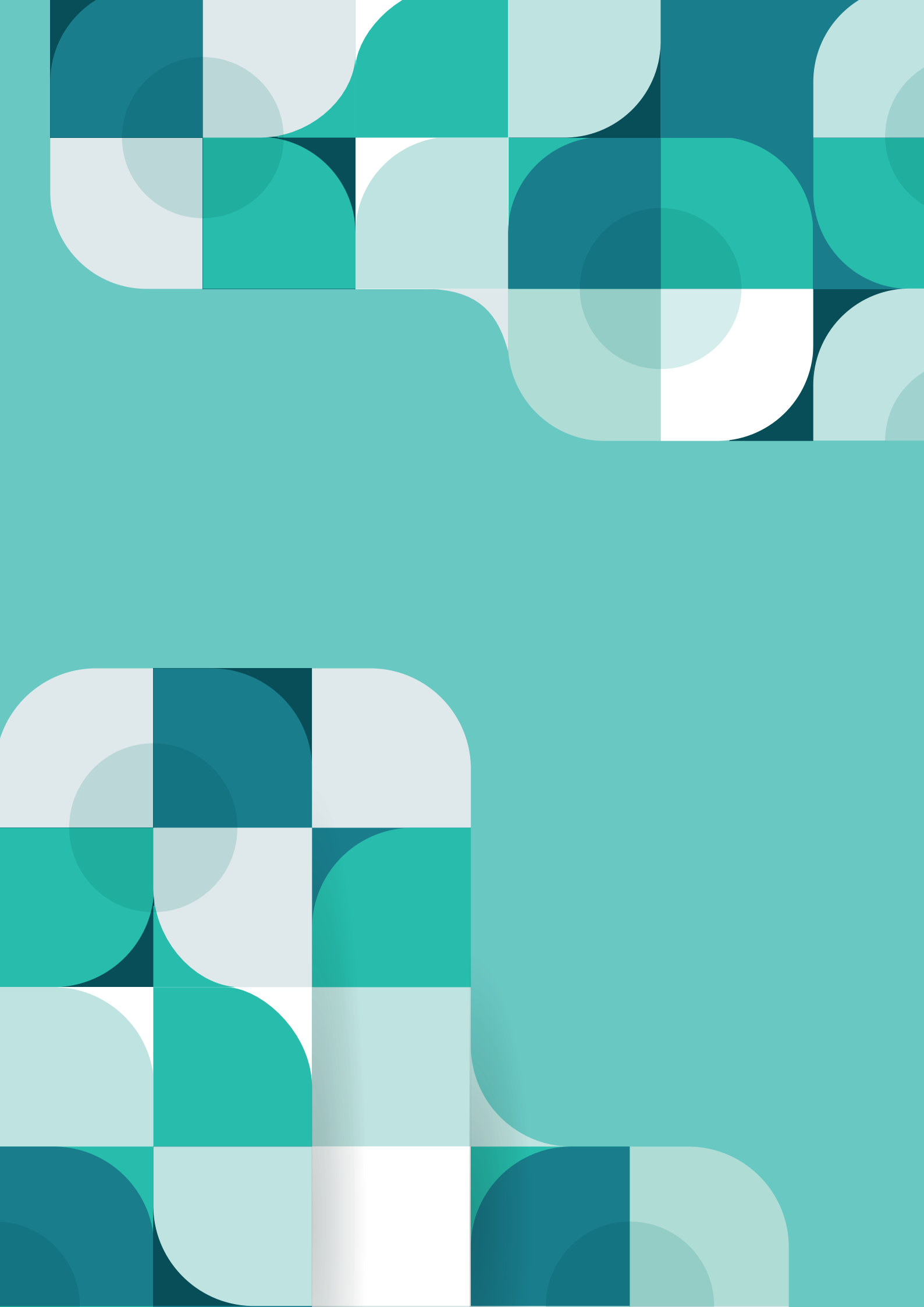




A REPORT ON **PHYSICAL ENVIRONMENTS** IN MENTAL HEALTH INPATIENT UNITS

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The importance of the physical environment in mental health

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It is encouraging to note that new mental health units opened in the last 4-5 years meet the requirements of the regulation and also have single en suite bedrooms with plenty of space internally and externally.

SUMMARY

The importance of the physical environment in mental health is not disputed and it is even more important where someone is being treated for mental illness in inpatient units. Mental health inpatient units (approved centres) are regulated by the Mental Health Commission and Regulation 22: Premises covers the physical environment.

Over many years, mental health inpatient units have struggled to comply with this regulation, achieving a maximum compliance level of 33% between 2017-2019. The reasons for non-compliance are varied but include the presence of ligature anchor points, lack of cleanliness, poor decorative and maintenance standards, poor ventilation, presence of hazards, and insufficient or unsuitable furniture.

The buildings of many mental health units are not appropriate for delivering mental health care. Many are converted from other healthcare buildings and are unsuitable as mental health facilities, with long corridors, poor lines of sight, cramped living and sleeping space, multi-occupancy bedrooms and small sitting rooms. Many acute facilities have no dedicated beds for older people.

Emergency Departments are often the first port of call for people with mental illness and it is essential that people can be assessed in a safe and private environment. Irish Emergency Departments have good facilities for mental health assessments and are in the most part sufficiently safe and private.

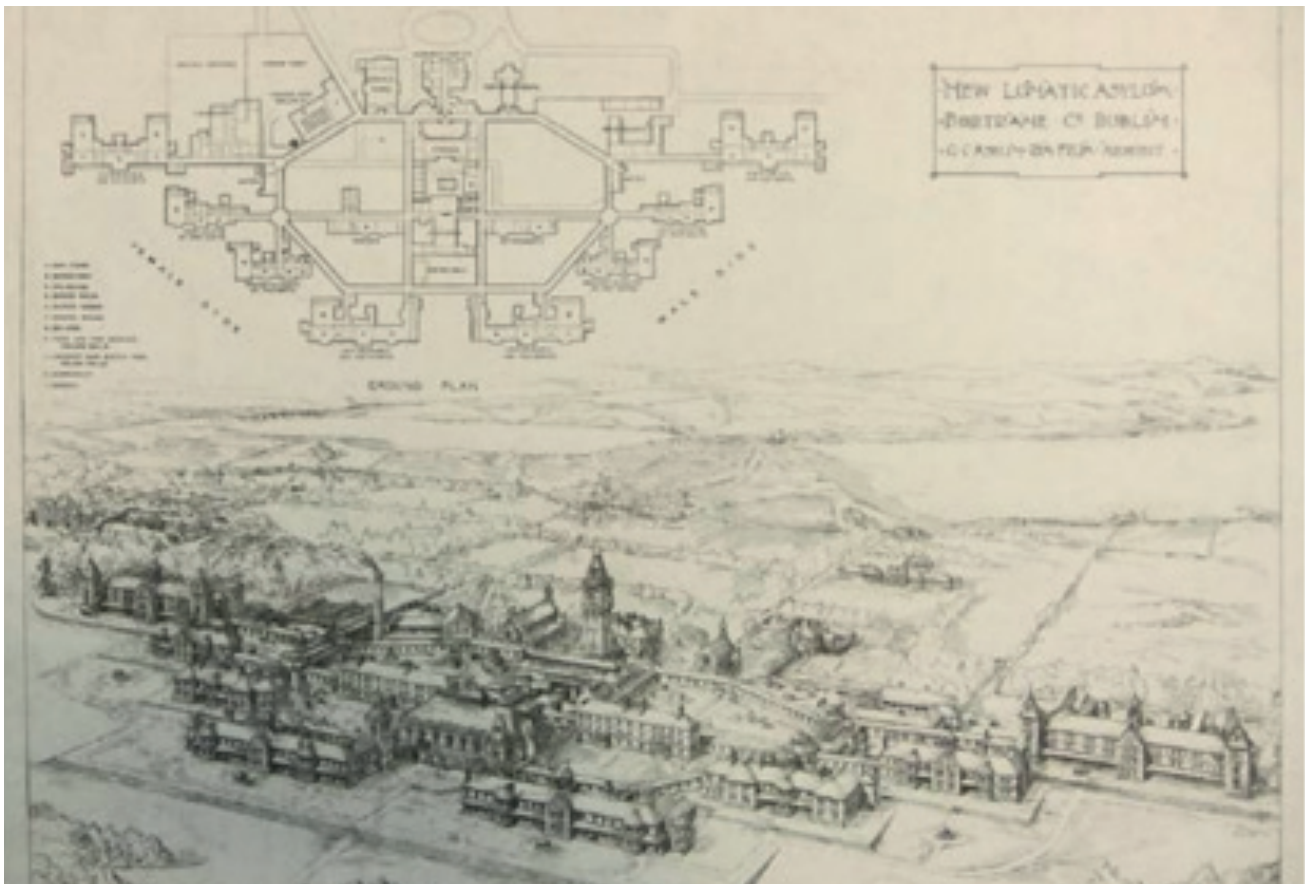
It is encouraging to note that new mental health units opened in the last 4-5 years meet the requirements of the regulation and also have single en suite bedrooms with plenty of space internally and externally. However, many unsuitable buildings remain which will require considerable funding to either replace or bring to an acceptable standard.

Dr Susan Finnerty
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February 2021

The physical environment of a treatment program affects patient outcome, but how and to what degree is not known. However, decisions about the design of the environment must be made, and they must be made in the face of cost and building-code constraints and widely varying patient characteristics and treatment models¹.

BACKGROUND

In the 1800s and 1900s, there was a proliferation in the number of asylums in Ireland – at one point 20,000 people were in these institutions being treated for mental illness. “Within decades, the asylums were too full, too big and grossly anti-therapeutic” and reaching their peak in the late 1950s².



A Buildings of Ireland survey described the architecture of Portrane asylum as: ... a new generation of asylums built on an echelon or broad-arrow plan, a formula first developed at Gloucester (1879). An octagonal corridor connects a series of independent pavilion buildings, allowing each of them a clear southerly view on the sea. This plan type has nothing to do with that of a prison – rather than locking up and throwing away the key, the health of a patient was to be achieved through the sensation of space and the opening towards nature. The symmetry of the plan is a familiar feature

reflecting the then standard practice of institutional segregation of the sexes. A central Administration Block separated two zones designated as the female side and male side. Within each side the patients were further separated into four categories depending on the acuteness of their illness³

From: Institutional reform in mental healthcare in Ireland: the establishment of the Ardee Mental Hospital, 1933, in its historical context. By Lisa Butterly, M.A.

¹ Davis C, Glick ID, Rosow I. The architectural design of a psychotherapeutic milieu. *Hosp Community Psychiatry*. 1979 Jul;30(7):453-60

² Brendan Kelly *Hearing Voices A History of Psychiatry in Ireland* ISBN 978-1-911024-34-7

³ Saint Ita's Hospital, Portrane, County Dublin (<http://www.buildingsofireland.ie>) accessed 14 June 2010; *Building News*, 27 Apr. 1900, p. 573; Reuber, 'The architecture of psychological management', pp 1179-89.

A report of the Inspector of Mental Hospitals in 1957 stated:

*Some of the old iron bedsteads in the dormitories should be replaced and others require repainting. The dining hall was suitably equipped; some chairs, however, needed minor repairs. The general kitchen block was unsuitable, the large range did not appear to be efficient and other cooking equipment appeared unsatisfactory. The condition of the buildings generally was poor. Urgent steps have been taken to eliminate dry rot which had been discovered throughout most of the main building and some of the outlying buildings. The stores accommodation was unsuitable as there was inadequate space and goods were kept in several small scattered stores. Overhanging trees prevent sufficient light from coming into some of the male day rooms. The hospital was mainly heated by central heating but there were open fires in one division and in the offices and one staff room. The heating system was unsatisfactory. Bathing and sanitary arrangements also required improvement.*⁴

The history of mental hospital architecture runs from a hopeful era of moral treatment in the eighteenth and nineteenth centuries which advocated that the designs of hospitals should be light, spacious and connected, to where the mental hospital becomes an intensely problematic space. This was due, in part, to its physical features such as its geographical isolation from the world, designs for confinement and surveillance, depressing wards and crowded dormitories. Criticism of this scale of institutionalisation contributed to the opening-up of psychiatric services from the 1980s with the emergence of psychiatric units in general hospitals and the development of community residences, day hospitals and day centres to integrate different therapies and communities, treat mental illness, and rehabilitate patients.

So, when in the 1990s, medical architecture shifted from functionalism towards patient-focused environments, psychiatric theories of treatment could include the decentralisation of

delivery of services and the limited understanding of therapeutic space. Coming from healthcare architecture practice, Mungo Smith pointed to the right balance between privacy and surveillance as a major dilemma for the design of psychiatric facilities at the time⁵. This resulted in buildings that accommodated mental health priorities as they relate to the main objectives of care:

- a. Harm and self-harm prevention that corresponds to safety and security;
- b. Medical and nursing provision;
- c. Social reintegration, promoting the personalization and choice that are lost in institutional environments and correspond to well-being⁶.

However, dangerousness and perception of risk for harm or self-harm dominated, and in some cases continue to dominate, the design of mental health facilities. This is the case despite the optimism that surrounded psychiatric rehabilitation movements.

Connections between the built environment and health can be traced back at least to Hippocrates' work *On Airs, Waters and Places* initially published more than 2,600 years ago⁷. By studying the living conditions of populations in Europe and Asia, Hippocrates, a physician, asserted that human health and illness were associated with a desirable state of equilibrium between the human organism and his or her immediate environment. In the United States, social science scholar and activist W.E.B. Du Bois established that health was a function of living conditions⁸.

The Architectural Study Project (ASP) in the USA began in 1953 and reflected a growing concern with the state of mental hospital facilities. Psychiatrists and architects turned their attention to various aspects of the hospital environment, such as light, colour and the creation of spaces for privacy and social contact, in ways that would go on to influence theories, methods and designs developed and applied far beyond the walls of the institution^{9 10}

⁴ Department of Health, 1957. Report of the Inspector of Mental Hospitals for the years 1951 - 1955. Dublin: Stationery Office

⁵ M. Smith, "Building for mental health-stick to your principles," in "With Design in Mind" in RIBA in 19/06/02, Isle of Wight Healthcare NHS Trust, London, UK, 2002.

⁶ Chrysikou E. Psychiatric Institutions and the Physical Environment: Combining Medical Architecture Methodologies and Architectural Morphology to Increase Our Understanding. J Healthc Eng. 2019

⁷ Hippocrates, On Air, Waters and Places, in the Genuine Works of Hippocrates, The Sydenham Society, London, UK, 1849

⁸ W. E. B. Du Bois, Ed., The Health and Physique of the Negro American, Atlanta University Press, Atlanta, Ga, USA, 1906.

⁹ Mental Hospital Architecture Architectural Study Programme. American Psychiatric Association

¹⁰ Ramsden E. Designing for Mental Health: Psychiatry, Psychology and the Architectural Study Project. 2018 Oct 17. In: Kritsotaki D, Long V, Smith M, editors. Preventing Mental Illness: Past, Present and Future. Palgrave Macmillan; 2019. Chapter 10. <https://www.ncbi.nlm.nih.gov/books/NBK538043/> doi: 10.1007/978-3-319-98699-9_10

CURRENT SITUATION

The Convention on the Rights of Persons with Disabilities (Article 28 Adequate standard of living and social protection) recognises the right of persons with disabilities to an adequate standard of living for themselves and their families, including adequate food, clothing and housing, and to the continuous improvement of living conditions, and shall take appropriate steps to safeguard and promote the realization of this right without discrimination on the basis of disability¹¹.

Built Environments

The built environment has been defined as “all buildings, spaces, and products that are created and modified by humans”.¹² Environments providing mental health services are regarded as having an effect on a patient’s sense of well-being¹³. Patients’ experience of such spaces can have a highly emotional dimension,¹⁴ which is suggestive that environment design of mental health facilities should be investigated as a potential means to influence therapeutic efficacy. Also, individuals have differing abilities to censor or suppress their environments and have reduced capacity to exclude environmental distractions, suggesting mental health service environments may have more impact for individuals that often arrive in a distressed state¹⁵. Psychiatric facilities are often criticised of being poorly designed which may contribute to violent incidents and patients’ complaints of feeling bored and lacking meaningful interactions with peers and staff. Early studies showed that when furniture is rearranged to promote social interaction (e.g., chairs facing one another at a comfortable distance, chairs arranged around a table), social interaction among hospitalized patients increases, and isolated, passive behaviours decrease¹⁶.

There is a lack of understanding how to design environments for staff, patients and visitors to engage in positive social interactions (e.g.

conversation, sharing, peer support). A systematic review in 2014 found no strong causal links between design and clinical outcomes, but private spaces and a homely environment may contribute to patient well-being, while design has a symbolic and social dimension for patients¹⁷. A later systematic literature review on which architectural typologies and design solutions facilitate helpful social interactions between users of psychiatric facilities found that several interventions were important:

- choosing a community location;
- building smaller (up to 20 beds), homelike and well-integrated facilities with single/double bedrooms and wide range of communal areas;
- provision of open nursing stations;
- ensuring good balance between private and shared spaces for patients and staff;
- specific interior design interventions such as arranging furniture in small, flexible groupings, introduction of plants on wards, and installing private conversation booths¹⁸.

These interventions range from simple and non-costly to very complex ones. The authors recommended that the evidence should inform the design of new hospitals and the retrofitting of existing hospitals. A triennial review of mental health services in England by the Care Quality Commission (2017)¹⁹ highlighted several serious concerns about inpatient care, including wards located in older buildings not designed to meet the needs of acute patients, unsafe staffing levels, and overly restrictive care in wards far from homes and families.

The World Health Organisation (WHO) Quality Rights Tool provides countries with practical information and tools for assessing and improving quality and human rights standards in mental health and social care facilities. The Toolkit is based on the United Nations Convention on the Rights

¹¹ The UN Convention on the Rights of Persons with Disabilities

¹² J. Grant, M. O’Neill, B. Petersen et al., *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation, and Environmental Quality*, U.S. Environmental Protection Agency, Washington, DC, USA, 2000

¹³ Gross R, Sasson Y, Zarhy M, et al. . Healing environment in psychiatric Hospital design. *Gen Hosp Psychiatry* 1998;20:108-14. 10.1016/S0163-8343(98)00007-3

¹⁴ Pressly PK, Heesacker M. The physical environment and counselling: a review of theory and research. *Journal of Counselling and Development* 2001;

¹⁵ Dijkstra K, Pieterse ME, Pruyn ATH. Individual differences in reactions towards color in simulated healthcare environments: the role of stimulus screening ability. *J Environ Psychol* 2008;28:268-77

¹⁶ Holahan CJ. Seating patterns and patient behaviors in an experimental dayroom. *J Abnorm Psychol*. 1972;80:115-124. 33.

¹⁷ Papoulias C, Cspike E, Rose D, McKellar S, Wykes T. The psychiatric ward as a therapeutic space: systematic review. *Br J Psychiatry*. 2014

¹⁸ Jovanovi N, Campbell J, Priebe S. How to design psychiatric facilities to foster positive social interaction - A systematic review. *Eur Psychiatry*. 2019

¹⁹ Care Quality Commission. *The State of Care in Mental Health Services 2014-2017*. Newcastle Upon Tyne: 2017

of Persons with Disabilities (CRPD). It includes practical guidance on preparing for and conducting a comprehensive assessment of facilities, reporting findings and making appropriate recommendations on the basis of the assessment²⁰.

Theme 1. The right to an adequate standard of living (Article 28 of the CRPD)

- Standard 1.1. The building is in good physical condition.
- Standard 1.2. The sleeping conditions of service users are comfortable and allow sufficient privacy.
- Standard 1.3. The facility meets hygiene and sanitary requirements.
- Standard 1.4. Service users are given food, safe drinking-water and clothing that meet their needs and preferences.
- Standard 1.5. Service users can communicate freely, and their right to privacy is respected.
- Standard 1.6. The facility provides a welcoming, comfortable, stimulating environment conducive to active participation and interaction.
- Standard 1.7. Service users enjoy a fulfilling social and personal life and remain engaged in community life and activities.

WHO Quality Rights Tool

The function of a mental health in-patient unit is to provide safe care in the least restrictive environment. With that, the importance of addressing the impact of the environment on patient safety, dignity, privacy, behaviour and well-being must be recognised. In-patient communities themselves are not that different from the communities we live in. Providing a suitable environment involves recognising and respecting the diverse needs, values and circumstances of each patient, including their race, religion, gender, age, sexual orientation, and any disability they may have. Maintaining high standards and continually improving the environment provided in inpatient mental health services helps improve the experience of service users, staff, and visitors. The environment has a crucial role in supporting the delivery of higher-quality and more cost-effective care.

The design of the acute unit may, therefore:

- provide comfort and a therapeutic environment for people at a time of acute distress and vulnerability who may be at risk to themselves or who may harm others;
- mitigate the effects of living in a restricted space with strangers, by preserving privacy, dignity, and control over the environment as far as possible;
- ensure appropriate levels of safety and security;
- support meaningful activities and provide a high-quality environment;
- allow for the separation of different groups on the basis of gender, vulnerability, physical frailty and acuity of illness.

Health Building Note 03-01: Adult acute mental health units Department of health (UK)

All fixtures and fittings such as window and door furniture, door closers and hinges, taps, showerheads, and coat hooks should be anti-ligature, robust and able to withstand sustained attack, and meet national safety requirements. The report *Not just bricks and mortar* (Royal College of Psychiatrists, 1998) stresses the need to avoid the “pressure cooker” effect of cramped accommodation²¹. It is equally important to avoid excessively large and high spaces that are likely to be noisy and distressing to service users. Safe external areas for mental health patients must also be provided. Outdoor furniture must avoid the risk of ligature points; bench seats and tables should be constructed of solid surface materials and securely fixed to the ground. There should be covered space for shade and patient use in bad weather.

Additional considerations include clearly defined patient residential areas readily identifiable by patients who may be disoriented or disturbed and an effective balance between opportunities for patients' privacy and the need for staff to observe patient behaviours.

Service users should have an early and continuing opportunity to contribute to the new service design and participate in the planning process. Service users' perspective should especially be taken into consideration when planning furnishings and colour schemes.

²⁰ WHO Quality Rights Tool Kit, World Health Organisation 2012

²¹ Not Just Bricks and Mortar Royal College of Psychiatrists 1998

OLDER PEOPLE

Mental Health Services for older people should provide appropriate in-patient facilities for the reception, multi-disciplinary assessment, admission, diagnosis, and treatment of patients presenting with psychiatric conditions and behavioural disorders, along with an assessment of physical health and psycho-social issues. The inpatient unit must provide a safe environment. Optimal physical environments are associated with shorter lengths of stay, lower levels of aggression and critical incidents, better client outcomes, and better staff conditions and satisfaction. Recurrent costs will be substantially reduced and services and outcomes improved in such settings.

Some patients may be agitated, aggressive and a potential risk to themselves or others, including staff. The unit must therefore provide a level of security and the capacity for observation and even temporary containment. However, this should be achieved with a therapeutic focus, so that while necessary measures for safety and security are in place, they are non-intrusive and do not convey a custodial ambience.

It must be stressed that Older Persons Mental Health Units are not “dementia” units, but they should be able to accommodate people with dementia, confusion, and disturbed behaviour appropriately. The following principles should be applied:

- Reduce size of the patient groups
- Make the environment as familiar as possible
- Make the environment as domestic as possible
- Make the environment safe and secure
- Make the environment simple, with good visual access
- Reduce unnecessary stimulation
- Highlight helpful stimuli
- Provide for planned wandering
- Provide opportunities for both privacy and community, i.e. a variety of social spaces
- Provide for visitors, i.e. links to the community²².



REDUCTION OF AGGRESSION

Patient aggressive behaviour in psychiatric facilities is a serious and worldwide problem that may be increasing. Incidents of violence are prevalent and cause psychological harm and sometimes physical injury to patients and staff. A review of 122 studies carried out in 11 countries (among others, United States, United Kingdom, Australia, Sweden, Germany, Netherlands) found that 32.4% of patients admitted to psychiatric facilities engaged in aggressive behaviour or violence²³. Much research in psychiatry to predict and reduce aggressive behaviour has focused on patient characteristics (such as diagnosis or history), as well as improvements to staff training and care processes. By contrast, few studies have examined the possible influence of architectural features on outcomes.²⁴ The lack of theory and research evidence has often limited an inpatient mental health unit design for aggression reduction to security features and damage-resistant components: locks, observation windows and cameras, violence proof doors and walls, metal detectors, and isolation rooms. These measures continue to be important, but the apparent continued high incidence of

aggressive behaviour and violence suggests that reliance on traditional architectural and clinical approaches is not enough^{25,26}. A poorly designed facility that prevents privacy, is noisy, and has other stressful features can intensify the stress of mental illness and involuntary confinement, thereby worsening aggression. Architecture can reduce aggression if deliberately designed to minimize stressors such as crowding and noise and offer stress-reducing positive distractions²⁷. This can be reflected in different outcome improvements, such as reduced verbal aggression, physical violence, less use of compulsory injections, physical restraints, seclusion, and fewer injuries to patients and staff. The stress-reducing environmental features directly and positively influence staff, for example, by reducing work-related stress and fostering higher work satisfaction and retention. Diminished patient stress and aggressive behaviour are considered to feedback positively on staff, improving staff outcomes and fostering better care that further helps lessen patient stress and aggression.

²³ 'Inpatient violence and aggression: a literature review', Report from the Conflict and Containment Reduction Research Programme, Len Bowers, Duncan Stewart, Chris Papadopoulos, Charlotte Dack, Jamie Ross, Husnara Khanom, Debra Jeffery, May 2011 Section of Mental Health Nursing Health Service and Population Research Institute of Psychiatry Kings College London

²⁴ C. Papoulias, E. Csipke, D. Rose, S. McKellar, T. Wykes 'The psychiatric ward as a therapeutic space: Systematic Review' *British Journal of Psychiatry*, 205 (2014), pp. 171-176

²⁵ Roger S. Ulrich, Lennart Bogren, Stuart K. Gardiner, Stefan Lundin. Psychiatric ward design can reduce aggressive behaviour. *Journal of Environmental Psychology* Volume 57, June 2018

²⁶ K. Connellan, M. Gaardboe, D. Riggs, C. Due, A. Reinschmidt, L. Mustillo Stressed spaces: Mental health and architecture *Health Environments Research & Design*, 6 (4) (2013), pp. 127-168

²⁷ R.S. Ulrich, C. Zimring, X. Zhu, J. DuBose, H.-B. Seo, Y.-S. Choi, et al. A review of the research literature on evidence-based healthcare design *Health Environments Research and Design*, 1 (3) (2008), pp. 101-165

OVERCROWDING

There is much evidence that crowding stress and related aggression are linked to inadequacies in the physical environment that constrain the ability of persons to seek privacy, regulate their relationships with others, and avoid stressors such as noise and arguments. Environmental psychology has distinguished between *spatial density* and *social density*. Spatial density is defined as the amount of space (square meters or feet) per person in a physical environment, while social density usually refers to the number of persons per room. Studies carried out in non-hospital environments as varied as apartments and prisons have shown that the most consistently important variable for predicting crowding stress and aggressive behaviour is the number of persons per room (social density), and that spatial density is relatively unimportant unless space per person becomes constricted²⁸. Social density is a broad indicator of the extent to which psychiatric ward architecture facilitates or hampers patients' ability, by moving between different rooms, to regulate relationships and room group size, access privacy, and avoid stressors. Ward social density is defined as the number of patients per accessible room. Rooms include private and shared bedrooms, private and shared toilets and showers, day rooms, and other communal spaces such as kitchens or activity rooms. A garden is counted as a communal space (or room) only if it is unlocked, accessible to patients without staff escort, and contains seating. Corridors are regarded as movement paths with narrow dimensions that can exacerbate personal space intrusions and trigger aggressive behaviour. This interpretation is supported by evidence showing that corridors stand out as the location of many aggressive incidents in psychiatric wards and adolescent treatment facilities.²⁹ For example, a study of six psychiatric units found that 38% of assaults and other aggressive incidents occurred in corridors.³⁰

Beyond social density, research in environmental psychology and other fields suggests that a conceptual model for designing psychiatric facilities

to reduce stress and aggression should prominently include other environmental features that enable patients to seek privacy, regulate interpersonal interactions, avoid stressors, and experience stress-reducing positive distractions such as nature. Even if occupancy escalates to 100%, a ward with single bedrooms, private bathrooms, and several communal spaces -- compared to wards with multi-bed rooms, shared bathrooms, and few communal rooms -- can maintain a low social density of <0.5 patient per room, indicating the physical environment will continue to make it possible for patients to regulate relationships and avoid unwanted contacts by moving between rooms. Additionally, the conceptual model predicts that the association between high social density and crowding stress (and aggressive behaviour) will be intensified if communal rooms are designed with features that hamper regulation of relationships and worsen personal space intrusions within the rooms, such as restricted space per patient and fixed seating³¹.

Providing unlocked gardens that are accessible to psychiatric inpatients can foster stress reduction by providing nature views, enhancing control, and offering pleasant places to seek privacy or socialize³². However, there is no basis for expecting that a garden will be frequently used and effective for reducing stress if it is locked and access requires time-consuming escort by busy staff of patients by elevator or through hallways. A study in England in 2015 compared aggression in an old psychiatric care unit with levels in a new unit having environmental improvements that included, for example, single rooms and increased levels of visibility ("clear sight lines")³³. Findings suggested that aggression was lower in the new ward compared to the old as evidenced by reductions in aggressive incidents and seclusion rates.

Randomized studies of non-patient volunteers have provided strong evidence that exposure to uncontrollable or unpredictable noise increases stress, triggers aggression, and worsens retaliatory

²⁸ A. Baum, P. Paulus D. Stokols, I. Altman (Eds.) *Over-Crowding Handbook of environmental psychology*, Wiley, New York (1987), pp. 533-570

²⁹ K.R. Chou, R.B. Lu, W.C. Mao 'Factors relevant to patient assaultive behavior and assault in acute inpatient psychiatric units' in *Taiwan Archives of Psychiatric Nursing*, 16 (4) (2002), pp. 187-195

³⁰ M.L. Lanza, H.L. Kayne, C. Hicks, J. Milner Environmental characteristics related to patient assault *Issues in Mental Health Nursing*, 15 (1993), pp. 319-335

³¹ Ulrich, R., Bogren, L., Gardiner, S. et al (2018) Psychiatric ward design can reduce aggressive behavior *Journal of Environmental Psychology*, 57: 53-66

³² R.S. Ulrich *Effects of gardens on health outcomes: Theory and research* .C. Marcus, M. Barnes (Eds.), *Healing gardens*, John Wiley, New York (1999), pp. 27-82

³³ O. Jenkins, S. Dye, C. Foy A study of agitation, conflict and containment in association with changes in ward physical environment *Journal of Psychiatric Intensive Care*, 11 (2015), pp. 27-3

aggression³⁴. Design measures found effective for reducing noise and enhancing acoustic privacy in non-psychiatric hospitals includes, but is not limited to, providing single-bed rooms with walls and doors that block noise and using sound-absorbing environmental surfaces that diminish echoing and propagation of noise³⁵.

Evidence-grounded theory in healthcare design holds that one important way design can reduce patient stress is by fostering a sense of control over physical surroundings³⁶. A study of Dutch psychiatric wards found that control-related design features in patient rooms (operable windows, for example) were

associated with significantly lower seclusion risk³⁷.

Findings from two studies suggest that design for good visibility reduces aggressive behaviour and seclusion risk in psychiatric wards. Jenkins et al³⁸ compared aggressive behaviour in an old facility versus a new facility with increased visibility as measured by “all areas of the ward being visible from the staff base” and “clear lines of sight.” Van der Schaaf et al (2013), in the research cited above, compared wards with respect to visibility, giving a higher ranking to those having cameras, wide corridors, and good overview and sight lines.

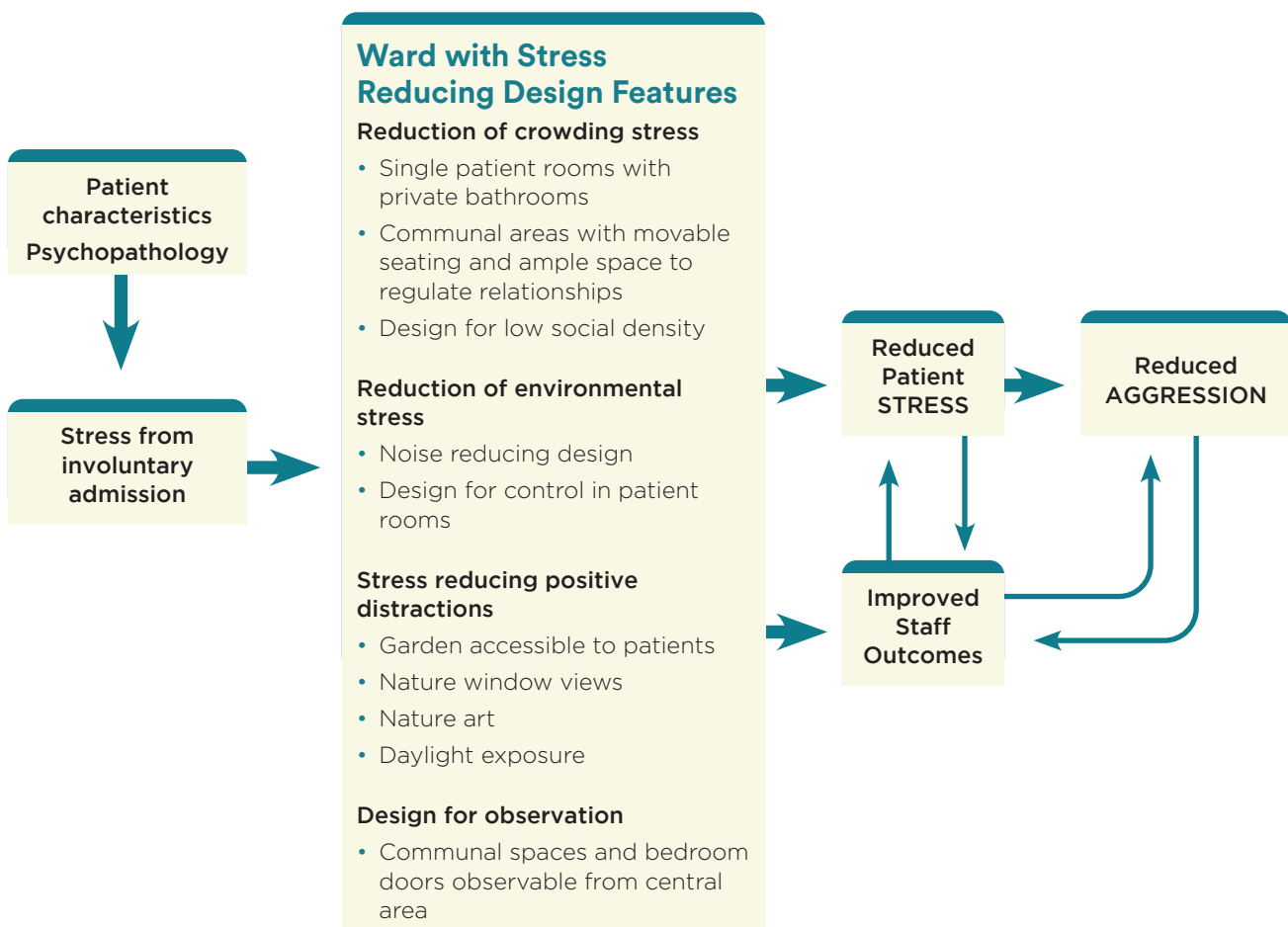


Fig. 1. Conceptual model for designing inpatient psychiatric wards to reduce aggression³⁶

³⁴ R.G. Geen, E.J. McCown Effects of noise and attack on aggression and physiological arousal Motivation and Emotion, 8 (1984), pp. 231-241

³⁵ R.S. Ulrich, C. Zimring, X. Zhu, J. DuBose, H.-B. Seo, Y.-S. Choi, et al. A review of the research literature on evidence-based healthcare design' Health Environments Research and Design, 1 (3) (2008), pp. 101-165

³⁶ C.C. Andrade, A.S. Devlin Stress reduction in the hospital room: Applying Ulrich's theory of supportive design Journal of Environmental Psychology, 41 (2015), pp. 125-134.

³⁷ P.S. van der Schaaf, E. Dusseldorp, F.M. Keuning, W.A. Janssen, E.O. Noorthoorn Impact of the physical environment of psychiatric wards on the use of seclusion British Journal of Psychiatry (2013), pp. 1-10

³⁸ O. Jenkins, S. Dye, C. Foy A study of agitation, conflict and containment in association with changes in ward physical environment Journal of Psychiatric Intensive Care, 11 (2015)

SINGLE BEDROOMS

Single Bedrooms are recommended to support gender separation, to provide patients with safe personal space, and reduce the risk of disturbance to other patients³⁹.

Ulrich et al⁴⁰ found the design intervention that positively affects the largest number of outcomes in a hospital setting is the provision of single-bed patient rooms. The value of single bedrooms has been acknowledged by the American Institute of Architects, after extensive research, and has been included in the 2006 Guidelines for Design and Construction of Health Care Facilities⁴¹. Strong evidence indicates that single-bed rooms improve the following outcomes:

Single rooms substantially lessen noise, reducing patient stress and improving sleep.

Single rooms reduce harmful and costly patient transfers.

Single rooms are far superior to multi-bed rooms for enhancing dignity and privacy.

Single rooms are superior for supporting family presence.

Single rooms enhance communication between clinical staff and patients.

Single rooms increase patient satisfaction.

Single rooms compared to increase flexibility in managing bed availability⁴².

Single bedrooms with private bathrooms may be the single most important design intervention for facilitating privacy and reducing crowding

stress and aggression in inpatient psychiatric wards. Considerable research on apartments and correctional facilities has shown that the number of persons sharing a bedroom or cell reliably correlates with higher crowding stress, reduced privacy, more aggressive behaviour, illness complaints, and social withdrawal⁴³. Research on psychiatric inpatient wards suggests a strong association between multi-occupancy bedrooms and social withdrawal⁴⁴. A study of 92 inpatient wards in England found that provision of single rooms and private bathrooms for patients was associated with higher staff satisfaction with the built environment⁴⁵. This can be reflected in different outcome improvements, such as reduced verbal aggression, physical violence, less use of compulsory injections, physical restraints, seclusion, and fewer injuries to patients and staff. The stress-reducing environmental features directly and positively influence staff, for example, by reducing work-related stress and fostering higher work satisfaction and retention. Diminished patient stress and aggressive behaviour are considered to feedback positively on staff, improving staff outcomes and fostering better care that further helps lessen patient stress and aggression⁴⁶.

These findings emerge when studies control for spatial density or the amount of space per person in bedrooms. Research on psychiatric inpatient wards suggests a strong association between multi-occupancy bedrooms and social withdrawal⁴⁷.

³⁹ International Health Facility Guidelines Version 4 May 2014 Part B – Health Facility Briefing & Design 180 Mental Health Unit – Adult

⁴⁰ Ulrich R, Zimring C, Zhu X, et al A Review of the Research Literature on Evidence-Based Healthcare Design HERD 1:61 2008

⁴¹ Guidelines for Design and Construction of Hospital and Health Care Facilities. 2006. Washington, D.C.: The American Institute of Architects Press.

⁴² The Economic Case for Renewing Ireland's Healthcare Infrastructure Professor Roger S. Ulrich Dept of Architecture, Texas A & M University Director Centre for Health Systems & Design November 2008

⁴³ V.C. Cox, P.B. Paulus, G. McCain Prison crowding research: The relevance for prison housing standards and a general approach regarding crowding phenomena American Psychologist, 39 (10) (1984), pp. 1148-1160

⁴⁴ W.H. Ittelson, H.M. Proshansky, L.G. Rivlin Bedroom size and social interaction of the psychiatric ward J. Wohlwill, D. Carson (Eds.), Environment and the social sciences, American Psychological Association, Washington, DC (1972), pp. 95-104

⁴⁵ B. Sheehan, E. Burton, S. Wood, C. Stride, E. Henderson, E. Wearn Evaluating the built environment of inpatient psychiatric wards Psychiatric Services, 64 (8) (2013), pp. 789-795

⁴⁶ Ulrich, R., Bogren, L., Gardiner, S. et al (2018) Psychiatric ward design can reduce aggressive behavior Journal of Environmental Psychology, 57: 53-66

⁴⁷ W.H. Ittelson, H.M. Proshansky, L.G. Rivlin Bedroom size and social interaction of the psychiatric ward J. Wohlwill, D. Carson (Eds.), Environment and the social sciences, American Psychological Association, Washington, DC (1972), pp. 95-104

INFECTION PREVENTION AND CONTROL

Effective infection prevention and control is central to providing high quality health care for all patients and a safe work environment for those that work in the healthcare setting. Published in 2017, a study of the impact on infections of the move from an old hospital to a new building with a high proportion of single rooms showed that the number of bed days lost to norovirus was “significantly lower”. The “increased availability of single rooms had an impact on the transmission of highly contagious norovirus infection, [which is] dispersed via the airborne route.” The study concluded that “single room isolation facilities are essential in acute hospitals and will become increasingly important as highly transmissible and increasingly resistant organisms colonise and infect patients⁴⁸.”

There is a consensus view in Europe and North America that single rooms in hospitals are important in preventing and controlling healthcare associated infections. Single rooms facilitate family involvement in patient care and increase the opportunities for treatment at the bedside. They enable better bed management, abolish gender bed blocking and lead to fewer patient transfers. The evidence that physical barriers are good at preventing the spread of microbes is strong.

Single bed occupancy reduces air-borne as well as cross-transmission of pathogens between patients. “Scientific evidence should lead to an increase in the number of single rooms in hospitals in such numbers that all contagious patients can benefit”⁴⁹.

Research has mainly concentrated on nosocomial infections (hospital-acquired infections like MRSA and *C. difficile*), as well as hospital-acquired influenza. A 2016 European study compared double-occupancy rooms with single rooms and concluded single occupancy rooms are reducing the risk of hospital-acquired infections, including influenza⁵⁰.

The design of single bedrooms not only eliminates the risk of cross-infection between patients, but also, with the provision of sinks near the entrance to the room, underlines the need for scrupulous handwashing by all staff, which is not easy on

a ward where washing facilities are shared. Maintaining a safe, clean and hygienic environment and minimizing microbial contamination of surfaces, items and equipment within the health care environment is increasingly recognized as an essential approach to reducing the risk of health care-associated infections for all patients, residents, visitors, and staff within health care settings.

The COVID-19 pandemic has demonstrated that, in Ireland, some mental health buildings are not fit for purpose, both across the community and inpatient estate. Many buildings have been designed to address safety concerns, such as fire, self-harm, and violence, but not infection prevention and control. It is paramount that mental health services prevent transmission of the virus in inpatient settings, as well as preventing the spread in the community. People who have a mental illness are also more likely to have poorer physical health than the general population, making them more susceptible to the virus⁵¹. This includes higher rates of smoking, respiratory disease (COPD, asthma, chest infections), substance use disorders, as well as malnourishment caused by metabolic problems or eating disorders.

It is important that the physical healthcare infrastructure is fit for purpose and provides adequate bed spacing, isolation and single room capacity that minimises the spread of infections, including multidrug-resistant microorganisms. A clean, clutter-free healthcare environment is a fundamental expectation of patients, families and visitors. It is essential that the service complies with all aspects of maintaining cleanliness and safety of the physical environment in line with relevant legislation and best practice for the prevention and control of healthcare-associated infections.

Best Practice Guidelines for Mental Health Services provides a check list for self-assessment of physical environment to ensure compliance with legislative requirements⁵². The HSE National Service Plan 2020 states that the HSE will roll out the agreed capital developments to enhance facilities and infrastructure for service users and staff.

⁴⁸ Darley E et al. Impact of moving to a new hospital build, with a high proportion of single rooms, on health-care associated infections and outbreaks. *Journal of Hospital Infection*. June 2017

⁴⁹ Brouqui P Should we provide acute care in single room occupancy *Journal of Clinical Microbiology and Infection*. 2016

⁵⁰ Munier-Marion E. et al Hospitalisation in double-occupancy rooms and the risk of hospital-acquired influenza: a prospective cohort study. 2016 European Society of Clinical Microbiology and Infectious Diseases

⁵¹ DE Hert M, et al. Physical illness in patients with severe mental disorders. Prevalence, impact of medications and disparities in health care. *World Psychiatry*. <https://onlinelibrary.wiley.com/doi/full/10.1002/j.2051-5545.2011.tb00014.x> [Accessed 05 November 2020]

⁵² Best Practice Guidance for Mental Health Services. HSE



The standards cover important areas such as: providing timely evidence-based care and treatment, supporting patients and carers and treating them with dignity, looking after staff, and evaluating and improving services.

DIGNITY

Environmental shortcomings can also have an impact on a person's dignity. Threats to dignity can range from having a lack of privacy in mixed-gender wards to having to live in impoverished, unclean or even dangerous environments. Conditions of privacy, whether it is while attending to toileting and personal care or during family visits or clinical consultations, may be jeopardised in settings where a greater priority is afforded to organisational efficiency than to individual care⁵³. Such failures may amount to violations of the right to respect for private and family life under Article 8 of the European Convention on Human Rights (ECHR).

The Royal College of Psychiatrists have developed core standards for inpatient mental health services. These standards, which have been closely aligned to the patient experience, are designed to be used across all mental health services to improve the quality of care provided. The standards cover important areas such as: providing timely evidence-based care and treatment, supporting patients and carers and treating them with dignity, looking after staff, and evaluating and improving services⁵⁴.

- Male and female patients have separate bedrooms, toilets and washing facilities.
- All patients have single bedrooms.
- Patients are able to personalise their bedroom spaces.
- The ward/unit has at least one bathroom/shower room for every three patients.
- Every patient has an en suite bathroom.
- Laundry facilities are available to all patients.
- Patients can access a charge point for electronic devices such as mobile phones.
- The environment complies with current legislation on disabled access.
- There are clear lines of sight to enable staff members to view patients. Measures are taken to address blind spots and ensure sightlines are not impeded, e.g. by using mirrors.
- All rooms are kept clean.
- Staff members and patients can control heating, ventilation and light.
- The ward/unit has a designated room for physical examination and minor medical procedures.
- The ward/unit has at least one quiet room other than patient bedrooms.
- There is a designated area or room (de-escalation space) that the team may consider using, with the patient's agreement, specifically for the purpose of reducing arousal and/or agitation.
- There is a separable gender-specific communal space which can be used as required.
- There are facilities for patients to make their own hot and cold drinks and snacks which are available 24 hours a day.

Royal College of Psychiatrists Standards for Inpatient Mental Health Services Second edition, 2017 Editors: Jen Perry, Lucy Palmer, Peter Thompson, Adrian Worrall, Rob Chaplin Publication Code: CCQI260

⁵³ Essence of Care: Benchmarks for the Care Environment. Department of Health (UK), 2007

⁵⁴ Royal College of Psychiatrists Standards for Inpatient Mental Health Services Second edition, 2017 Editors: Jen Perry, Lucy Palmer, Peter Thompson, Adrian Worrall, Rob Chaplin Publication Code: CCQI260

CURRENT SITUATION IN IRELAND

Compliance with Regulation

There are 65 approved centres (in-patient mental health hospitals/units) across Ireland which are registered and regulated by the Mental Health Commission.

Type of Approved Centres	Number
Acute Mental Health Care*	32
Long Term Residential Mental Health Services*	31
Child and Adolescent Mental Health Services	6
Forensic Mental Health Services	1

*A small number of approved centres provide both acute and long-term care

Regulations, against which approved centres are inspected, have one Regulation on Premises. However, the condition of the environment in mental health units is relevant to other Regulations and Rules including Privacy, Risk Management, Visitors, as well as seclusion facilities, therapeutic and recreational facilities, and ECT facilities.

Compliance levels with Regulation 22: Premises over past 5 years

2015	2016	2017	2018	2019
52%	34%	25%	33%	31%

The reasons for non-compliance were varied, but all resulted in either safety issues, such as the presence of ligature anchor points, or lack of respect for the service user.

Every service user has a right to be treated and cared for in a clean, safe environment. It is the duty of everyone who works in a healthcare facility to ensure the highest standard of cleanliness is pursued⁵⁵. However, inspectors have consistently found that many approved centres are not clean.

Finding	2017	2018	2019
Unclean premises	31%	30%	27%

Report of findings in a mental health unit in 2019:

The approved centre was not adequately clean. Bins were overflowing in both the male and female toilets. There were discarded cigarette butts in the sink of the ladies' communal toilet. The bath within the assisted bathroom was dirty. Thick cobwebs were observed on the ceiling.

There has been only a minimal improvement in cleanliness over a three-year period and, on a number of occasions, the inspectors directed that a deep clean take place immediately.

⁵⁵ <https://www.hse.ie/eng/about/who/qid/resourcespublications/tool-box-talks/infection> Accessed 30 November 2020

Reason for non-compliance	2017		2018		2019	
Non-compliant with Regulation 22: Premises	75%		67%		69%	
Percentage of acute units that were non-compliant	56%		50%		56%	
	Number	Percent	Number	Percent	Number	Percent
Presence of ligature anchor points	32	67%	19	44%	17	38%
Unclean premises	15	31%	13	30%	12	27%
Lack of maintenance and decoration	26	54%	27	63%	21	47%
No programme of maintenance	20	42%	21	49%	7	16%
Lack of space for residents	9	19%	6	14%	6	13%
No outdoor space	7	15%	2	5%	2	4%
Poor ventilation	13	27%	16	37%	7	16%
Insufficient or unsuitable furniture	10	21%	12	28%	7	16%
Presence of hazards	6	13%	5	12%	7	16%

Maintenance

Maintenance of buildings has also been a significant problem as can be seen from the reports below⁵⁶:

Report of inspection of a mental health unit from 2019:

Premises were not maintained in a good decorative condition and the following issues were noted: holes in the walls where fixtures had been removed, scuff marks on the walls surrounding multiple doorways, discolouration of linoleum, unclean windows throughout the premises, and a broken curtain rail. A programme of routine maintenance and renewal of fabric and decoration of the premises was not developed and implemented. Communal rooms, including the sitting room and dining room, were minimally furnished, imparting a stark appearance.

In another approved centre in 2019:

The approved centre was not maintained in good structural and decorative condition as internal wall paint was peeling or chipped, floor coverings were damaged, and the ceilings were damaged in three areas due to leaks. Not all of the rooms were adequately ventilated. A programme of routine maintenance and decoration of the premises was not developed or implemented. Residents did not have access to personal space, as the beds within the dormitories were located too close together.

Not all approved centres were dirty or badly maintained. In the Department of Psychiatry in Drogheda, the following was noted during the inspection in 2019:

Appropriate signage and sensory aids were provided to support resident orientation needs and there were sufficient spaces for residents to move about, including outdoor spaces. The approved centre was kept in a good state of repair externally and internally and there was a programme of general maintenance, decorative maintenance, cleaning, decontamination, and repair of assistive equipment, for which records were maintained. A cleaning schedule was implemented, and the approved centre was clean, hygienic, and free from offensive odours. There was a sufficient number of toilets and showers for residents. The approved centre provided suitable furnishings to support resident independence and comfort.

All inspection reports can be found on the Mental Health Commission website: <https://www.mhcirl.ie>.

The age and suitability of several inpatient mental health facilities gives rise to concern. Many of these were not purpose built but were converted from other healthcare facilities. This has resulted in facilities with poor lines of sight, with long corridors, small sitting rooms, lack of outdoor space, ligature anchor points, and multiple occupancy bedrooms. One inpatient facility has a dormitory of 9 beds. Others have bedrooms that are cramped, with little space between the beds resulting in lack of privacy and dignity for the service user. Lack of outdoor space can have a significant effect on the physical and mental health of people. A small number of mental health units have only limited access to outdoors. St Michael's Unit in the Mercy Hospital in Cork has no outdoor space and service users depend on nursing staff to take them to a nearby green area.

Single room accommodation

There is a limited supply of single, en suite bedrooms in mental health in-patient facilities in Ireland. There are three acute mental health units that have all single, en suite bedrooms. A further two acute mental health units have 75% and 92% single, en suite accommodation respectively.

In the in-patient mental health facilities that provide long term accommodation for mostly older persons, 32% provide exclusively single bedroom accommodation. All forensic patients have single bedrooms but not en suite at present. One of the two psychiatric intensive care units (PICUs) has single bedrooms and three out of four child and adolescent (CAMHS) units have single bedrooms. In the independent and private sector, two out of seven in-patient facilities have exclusively single en suite bedrooms.

Hospital/mental Health unit types	Number of Hospital/Mental Health unit with all single en suite bedrooms
Acute	12%
Long-term facilities	32%
CAMHS	75%
PICU	50%
Independent/voluntary	29%

⁵⁶ Reports of the Inspector of Mental Health Services Mental Health Commission. <https://www.mhcirl.ie>

Emergency Departments

For patients who are presenting to the mental health services via an emergency route, safe and appropriate spaces in the Emergency Department (ED) is essential. EDs can be a stressful environment for any patient, but particularly for those who are feeling paranoid, psychotic, distraught, or suicidal. According to the Psychiatric Liaison Accreditation Network (PLAN)⁵⁷, run by the Royal College of Psychiatrists, a safe space should mean there are no ligature points and nothing that can be used as a weapon. The room should have an alarm system and two doors that open both ways. A room that doubles as an office should not be used. Healthcare provider organisations should ensure that emergency departments have at least one designated interview room for mental health assessment. PLAN identifies that a patient may be observed in a different space to where they undergo assessment by the mental health team and departments should consider how they can make these spaces as safe, quiet, and calm as possible.

NICE Guidelines recommend that the interview room:

- is close to or part of the main emergency department receiving area;
- is made available for mental health assessments as a priority;
- can comfortably seat six people;
- is fitted with an emergency call system, an outward opening door and a window for observation;
- contains soft furnishings and is well ventilated;
- contains no potential weapons.⁵⁸

Between November 2018 and January 2019 an audit of rooms for mental health assessments in Ireland's 26 Adult EDs that are open 24/7 was completed by Mental Health staff, using a self-assessment audit tool of Psychiatric Liaison Accreditation Network (PLAN) standards⁵⁹. Twelve (46%) of the rooms were fully compliant with PLAN standards, seven rooms were non-compliant, with a further seven rooms substantially compliant – leaving 19 (72%) of rooms fully or substantially compliant. Ligature points and mobile furniture were the most common non-compliant items. The findings showed Irish EDs have good facilities for mental health assessments, with 96% of EDs having a room and 73% of these rooms being either fully compliant or substantially compliant with PLAN standards and being sufficiently safe and private.

⁵⁷ Psychiatric Liaison Accreditation Network (PLAN) Quality Standards for Liaison Psychiatry Services, Sixth Edition Editors: Cassie Baugh, Eve Blanchard and India Hopkins Publication number: CCQI 326 Date: January 202

⁵⁸ Violence and aggression: short-term management in mental health, health and community settings NICE guideline [NG10] Published 5

⁵⁹ Jeffers, A., Jennings, R., & O'Mahony, J. (2020). An audit of assessment rooms for mental health assessments in Ireland's emergency departments. *Irish Journal of Psychological Medicine*, 1-6. doi:10.1017/ipm.2020.15

CONCLUSION

Service users need spaces where they have privacy and are able to reflect quietly, in addition to areas where they can engage with staff, meet visitors, socialise with other service users, participate in leisure activities (watching TV, listening to music, and indoor games, for example), and develop a sense of community. Providing a safe and therapeutic environment for service users, staff and visitors is integral to the provision of clinical care. It is particularly important to consider the impact that ward size and layout, service user numbers and population mix will have on the therapeutic environment and on safety.

There was between 50-56% non-compliance with regulation on premises between 2017 and 2019, with a wide range of reasons for this non-compliance. These included dirty premises, poor decorative and maintenance standards, insufficient or unsuitable furniture, poor ventilation, presence of hazards, and ligature anchor points. Many buildings are unsuitable as mental health facilities with multi-occupancy rooms, lack of personal and private spaces and cramped bedrooms and living areas. These conditions compromise service user safety as well as the dignity and privacy for the service user. It also indicates a lack of good governance and lack of funding for maintenance, structural improvements, and new buildings.

The importance of a clean, safe environment for all aspects of healthcare should not be underestimated. It is important that healthcare buildings are designed with appropriate consultation, and the design facilitates good infection prevention and control practices and has the quality and design of finishes and fittings that enable thorough access, cleaning, and maintenance to take place. During a three-year period, approximately one third of Irish mental health units were dirty. This is unacceptable as it affects infection prevention and control and shows disrespect for the service user. Lack of governance plays a key role in this failure.

We have seen how difficult it has been to isolate and restrict movement in mental health units that do not have single, en suite rooms or sufficient space during the COVID-19 pandemic. Mental health units have had to reduce their bed numbers in order to obtain sufficient space to manage the pandemic. This has had knock-on effects in waiting lists for inpatient treatment. With the assumption that the health service will face further virus outbreaks, perhaps not as severe as COVID-19, but nonetheless a severe strain on resources, the need for effective infection control within hospitals should be a major priority in the future redevelopment or building of new inpatient units. The HSE have responded to this, with some new builds in the last 3-4 years having single en suite bedrooms.

Any new capital project also needs to consider the huge impact mental illness has on an entire family network and include innovative ways to ensure those who use inpatient services are able to access their family and private life during their inpatient stay. Many inpatient services have had to deal with real challenges as carers, family members and parents were unable to visit during the height of the COVID-19 pandemic, and visiting policies are likely to be altered for many months.

There is also a need to ensure mental health facilities, both inpatient and community, are fit to accommodate patients with disabilities, including but not limited to the frail elderly. Patients who use wheelchairs, who are visually impaired or are hard of hearing need to be able to access and benefit from mental health services in the same way as other people without a physical disability would be able to. This is likely to become increasingly important with an ageing population with multiple illnesses. Dedicated units for older people are essential in meeting their physical and therapeutic needs, and yet there are only 50% of the recommended dedicated beds provided.

While the HSE have a National Plan for rolling out structural improvements, this is moving slowly. There are competing priorities and many inpatient mental health units that require substantial improvement. Years of neglect can be tracked through the inspection reports, with piecemeal improvements and never-ending plans with no funding. The test of “would we ourselves like to be treated or even live in this environment” is not met in many mental health units.





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