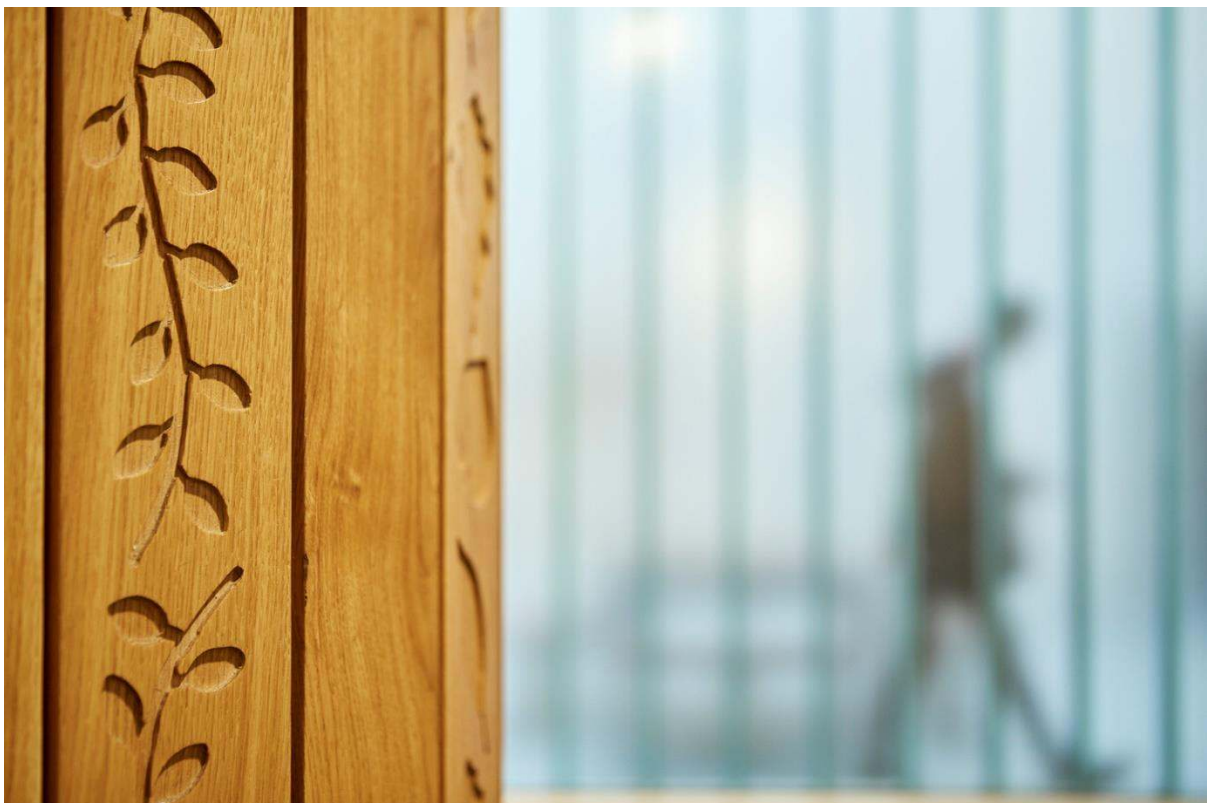# Design Guidance for

Psychiatric Intensive Care Units

2017

National Association of Psychiatric Intensive Care and Low Secure Units

NAPICU is a multidisciplinary, clinician-led organisation committed to developing and promoting the psychiatric intensive care speciality. Its aims are to improve patient experience and outcome, and to promote staff support and development by: improving mechanisms for the delivery of psychiatric intensive care and low secure care; auditing effectiveness; and promoting research, education and practice development. The Association uses a number of tools and methods to meet these aims, including local quarterly meetings and academic seminars; training initiatives; the NAPICU website; and an annual national conference. Various committees have been established to take an overview and further develop psychiatric intensive care units (PICUs) and low secure units (LSUs) through research, audit, training and education. The Executive Committee works with key stakeholders at regional and national levels to shape policy and practice in the area of acute inpatient psychiatry, including psychiatric intensive care and low secure services.

Design in Mental Health Network

DiMHN brings together people who commission, design, work in or use mental health services to encourage the sharing of best practice in design and to create improved and innovative solutions to improve outcomes. As well as addressing the broader questions in mental health design today, we encourage and take inspiration from exemplar projects where people are championing collaborative ways of working. The DiMHN is a not-for-profit, social enterprise company working with anyone, from architects to nursing staff, from building contractors to patients, who is interested in improving the environment from which mental health services are delivered.

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Design? Who needs it?

There is increasing evidence that the built environment can be therapeutic in its own right. From providing outlook onto green spaces to adequate sight-lines for staff, the whole built experience can enhance recovery. The opposite is also true: poorly designed accommodation for patients and staff can hinder the regaining of health and hamper safety.

The conclusion must be that if we want to maximise recovery and safety, design is essential, design that is informed by experience and evidence in exactly the same way that clinical care is. The two should act synergistically.

This guidance comes as a fitting follow-on to the PICU Commissioning Guidance published a year ago by NAPICU and NHS Clinical Commissioners (NAPICU, 2016). Good provision of services can only be optimised in an environment that is designed for the purpose. Too frequently, we have had to adapt existing, ill-suited buildings.

Imagine for a moment, at the lowest ebb of our life, in a vulnerable and distressed condition, being admitted against our choice into a dreary, cramped environment with others feeling as unwell as we do; a place where staff battle against rather than use the surroundings therapeutically. Worse, a place where we may not feel safe and adequately observed because of the restrictions of the accommodation.

Too often, in some of our aging hospitals this has been the experience of a patient in a PICU. Thankfully it is changing and many places are being upgraded.

As many areas are looking to improve their estate, this is well-researched, evidence-based advice on the best practice for PICU built environments. It sets the standards we can all aspire to.

Why is it so important?

- As patients, we need to ensure our surroundings feel safe where we can work towards recovery in minimum time.

- As staff, we need it for our confidence and wellbeing as we undertake a difficult task: happy and fulfilled staff means happier patients.

- As commissioners, we need it as the built environment is a cost-effective way to help deliver quality care and rehabilitation for patients at a very vulnerable time.

So, we welcome this guidance and commend it to commissioners, providers, users and carers alike. We trust it will give added confidence to those of us with mental health challenges and our families and friends that the NHS is serious about enhancing mental health recovery when crisis has overtaken us.

Dr Phil Moore

Chair, NHS CC Mental Health Commissioners Network
Deputy Chair, Kingston CCG

Foreword

With a clear focus on 'people', this guidance understands the impact upon mental health and well-being of the physical environment. Attention to shape and design of the environment is important in all spheres of mental health services including psychiatric intensive care where intense levels of distress are exposed. It is vital that the environment is truly therapeutic – it must be so in order for real healing to take place. The purpose of the psychiatric intensive care unit environment is to contain, soothe and de-escalate deep distress so that the patient experience is a positive one. In order to deliver exemplar care the workforce must have the same healthy and safe environment. Safe, effective, quality care can be delivered to the best standards enabling patient recovery to unfold.

This guidance equips stakeholders with the specific design knowledge relevant to attaining better patient outcomes through attention to PICU environments.

As a Royal College of Psychiatry Commission member, it was clear through our review of inpatient beds that the physical environment was one of the most significant features of a high quality inpatient mental health service. I often think of how when one is escaping from complexities, challenges and trauma of the wider world how desperate one feels looking for a place to just be safe.

In the past, inpatient services have not paid the level of attention required to the matter of providing a safe and therapeutic environment in which patients can receive the care required to enable them to recover. This design guidance provides insights into how services can create the environments that are much more aligned to service purpose and in this regard, it is genuinely timely.

I welcome the opportunity to support this guidance and encourage you to spread the news.

Jacqui Dyer MBE
Vice-chair, Mental Health Taskforce

Introduction

Recognising the limitations of an individual organisation in attempting to deal with the challenges of designing a PICU for the twenty-first century and beyond, this document is the result of a collaboration between the National Association of Psychiatric Intensive Care and Low Secure Units (NAPICU) and the Design in Mental Health Network (DiMHN). These two organisations are united by a shared vision: that patients in PICUs need to have a better environment that enhances their recovery.

Enhancing both the National Minimum Standards for Psychiatric Intensive Care in General Adult Services (NAPICU, 2014) and Health Building Note 03-01: Adult Acute Mental Health Units (DH, 2013a) this document will ensure that everyone involved in the design of a PICU has the relevant information to enable them to go 'above and beyond' in creating a healing environment to meet the needs of patients and staff. It is particularly important that the built environment assists clinicians to deliver services not just in a timely and effective manner but also in surroundings which are aesthetically pleasing and appropriate for the patients, as well as being safe and secure for all. A healing environment which has a positive impact ensures that empowered staff have a pleasant place to work and deliver effective services that enable patients' journey to recovery. At a time when patients are at their most vulnerable, the environment should offer them a space which feels comfortable, safe and peaceful, a space that allows recovery to take place. Frequently, competing priorities threaten to compromise design and this guidance will help to prioritise appropriately.
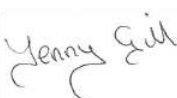
It also provides a great opportunity for all stakeholders to use current and emerging evidence to improve the physical environment in which multidisciplinary teams work to improve patients' experience in a PICU. DiMHN and NAPICU are confident that it will shape environments now and in the years to come, and improve the quality of care and treatment for patients and carers. A PICU should be conceived with patients and their recovery at the centre of design; this guidance will help clinical staff, managers, mental healthcare planners, designers and commissioners to gain the understanding required to plan, (re)design and build PICUs.

Both the NAPICU Chairman and the DiMHN Chairman are pleased to commend this document, which brings together the best of current knowledge for health care needs and good practice guidance to ensure that inpatient facility and design is not just fit for purpose for patients but enables staff to deliver the best possible care and aid recovery.

Dr Stephen Pereira

NAPICU Chairman

Jenny Gill

DiMHN Chairman

Chris Dzikiti

NAPICU Guidance Lead

1. Background

This document is the result of a collaboration between the Design in Mental Health Network (DiMHN) and the National Association of Psychiatric Intensive Care and Low Secure Units (NAPICU).

It provides design guidance and recommendations for commissioners, to ensure that evidence-based best practice can be incorporated into the design and layout of psychiatric intensive care units (PICUs).

Modern standards of care reiterate the right of every patient to be cared for in a safe and accessible space and not be harmed by unsafe or unsuitable equipment etc. However, this guidance is limited in its ability to guarantee appropriate and safe working solutions. This is a function of both specification and installation and requires the highest degree of input in terms of physical, skill and psychological facets.

Application of this document should be accompanied by a detailed and attainable quality management plan backed up by robust management and rigorous scrutiny.

This document should be read in conjunction with the National Minimum Standards for Psychiatric Intensive Care in General Adult Services (NAPICU, 2014), Department of Health (DH) Health Building Note (HBN) 03-01 (Adult Acute Mental Health Units; DH, 2013a) and the full suite of current Health Building Notes (HBNs) and Health Technical Memoranda (HTM) (see Appendix 1).

The HBN documents are organised as a suite of core subjects and include HBN 03-01 for adult acute mental health. They are the key documents for all health building, planning and briefing guidance in England. They draw together the best current knowledge for health care needs and should be regarded as best practice guidance, providing essential information on how to comply with the statutory and policy framework around the assurance of healthcare estates and facilities.

HTM give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare. They are applicable to new and existing sites, and are for use at various stages during the inception, design, construction, refurbishment and maintenance of a building.

This guidance covers the design of PICUs in England, for adults aged 18 years and above. Where rooms are specific to a general adult PICU and are not contained in other guidance (e.g. HBNs) a full description of that room will be given here. The purpose of this document is to inform the planning and design of the inpatient facility to give 'best practice' guidance and to support the delivery of care in appropriate surroundings to assist in meeting the national and local service objectives.

Purpose of a PICU

Psychiatric intensive care is for patients who are in an acutely disturbed phase of a serious mental disorder. There is an associated loss of capacity for self-control with a corresponding increase in risk which does not allow their safe, therapeutic management and treatment in a less acute or a less secure mental health ward. Care and treatment should be patient-centred, multidisciplinary, intensive and have an immediacy of response to critical clinical and risk situations. Psychiatric intensive care is delivered by qualified and suitably trained multidisciplinary clinicians according to an agreed philosophy of unit operation underpinned by the principles of therapeutic interventions and dynamic clinically focused risk engagement. Length of stay should be appropriate to clinical need and assessment of risk, but should aim to not exceed eight weeks in duration (NAPICU, 2014).

A PICU should be committed to offering care and treatment within an inpatient setting that respects individual rights for patients and allows treatment to occur in the least restrictive manner possible. The quality and fitness-for-purpose of the PICU is vital for high quality, safe and efficient healthcare. Design quality is also important in the context of healthcare building, where well-designed PICU can help patients recover their mental and physical health well-being and have a positive effect on staff performance, morale and retention.

This guidance seeks to set out the general design principles to be used in the construction of a suitable PICU. Good design improves the efficiency of operational relationships and provides better value for money for PICU commissioners.

Outdoor spaces

2. Planning considerations

A PICU is generally intended to be a short–medium-stay inpatient unit which aims to stabilise an acute episode of disturbance and initiate the establishment of a future care plan. As an acute, very responsive service, the PICU needs to be able to move patients appropriately in and out of the PICU as required and without delay. The quicker a patient experiencing an acute episode can make sense of their new environment, the more successful therapeutic interventions are likely to be. Moreover, a well-planned and detailed built environment can also support and enable accelerated recovery. Overall planning interventions should pay close attention to:

- The ease with which the PICU can be accessed for emergency response by staff from other parts of the hospital

- Access away from the main entrance for patients who may arrive by vehicle in a distressed and vulnerable state, to preserve privacy and dignity

- Blue light emergency vehicle access and egress from the building

- The amount of safe and secure patient-accessible external space

- The need for appropriate grounds around the PICU accessible for patients on Section 17 leave

- The ease with which the floor plan can be managed in terms of clear lines of sight and movement around the PICU

- The range of rooms and facilities available within the PICU for recreation, therapeutic activity and engagement

- The impact of the general design, décor and acoustics on the occupants.

2.1. Relevant documentation

The location and size of a PICU is fundamental to ensuring that care is given in the appropriate environment and that the care pathway functions in an appropriate manner for the patient requirements.

HBNs give 'best practice' guidance on the design and planning of new healthcare buildings and on the adaptation and extension of existing facilities (see Appendix 1). They provide information to support the briefing and design processes for individual projects. The full suite of HBNs should be considered before the design process begins, but in particular HBN 03-01 (Adult Acute Mental Health Units; DH, 2013a) which forms the basis for all mental health units, regardless of specialty.

HTM give advice and guidance on the design, installation and operation of specialised building and engineering technology used within healthcare (see Appendix 1).

2.2. Location

Locating the PICU on the site of a mental health hospital will help to ensure emergency cover for the service from other areas as required, peer support for staff and easier access for patients moving between the PICU and the other wards.

Ideally the PICU should be located on the ground floor. Access to external space at the same level should also be available to patients.

Ideally a PICU should not be a stand-alone unit with no other mental health services close by. However, if the PICU is part of a larger complex, it should have an entrance that does not require passing through another part of the hospital, other than a main corridor.

As a specialist service, the PICU may serve more than one hospital in adult mental health services and a geographical area covered by more than one mental health trust. Therefore, locating the PICU as centrally as possible within the area it serves is an important consideration for ease of access.

Horticultural space

2.3. Size of functional content

The required extent of the service should be assessed, and used to identify possible site locations and initiate project costs. Capacity planning is required to identify the number of beds needed to serve the area to be covered. This will also assist in identifying where the beds should be located and identify the gender balance required. Generally, more males than females require access to a PICU.

From a clinical and operational perspective, recent evidence suggests that smaller PICUs tend to function more effectively, and it is recommended that there should be a maximum of 14 beds. Units of 10 beds are common and are considered to be a manageable size, with good potential to achieve a safe staff to patient ratio. The decision with regard to mixed or single sex PICU should be made early in the design process as this has a significant effect on the functional content of the unit; single-sex PICU require less accommodation.

2.4. Refurbishment

In some circumstances, the refurbishment of existing facilities may be the most viable option. In this case, care should be taken to ensure that the environmental quality and functional suitability are not compromised to satisfy immediate need and constraints on available capital, as this may affect the long-term outcomes.

The provision of en-suite bedrooms should be considered. If this cannot be achieved within the space available then the size of the bedrooms should not be compromised nor should other spaces be reduced; consideration should be given instead to reducing the number of bedrooms.

3. Design considerations

The quality of PICU design and environment has a strong influence on the quality of patients' lives and the care they receive. Decisions about the design, planning and management of PICU environment can enhance or restrict a patient's sense of belonging. They can increase or reduce feelings of physical security, promote or reduce mobility, and improve or have a negative outcome on patients' health.

Patients in a PICU environment experience the built environment differently according to who they are, depending on their social, cultural and economic background. The full diversity of patient experience needs to be considered when designing a PICU if all patients are to be comfortable and feel that a particular ward environment belongs to them.

The PICU environment should be designed, built and operated in line with inclusive principles, reflecting the diversity of patients who use it (e.g. DH, 2007). This should be considered from the outset of the design process and remain integral throughout the building stages, helping to deliver a PICU environment that patients, staff and visitors can access and benefit from. Consideration should be given at an early stage to the art strategy. In addition to art works within the unit, this should include spaces for displaying patient art and for personalisation of private spaces.

3.1. Privacy and dignity

Both new build and refurbished PICU can promote privacy and dignity through the provision of single, en-suite rooms, gender-separate areas and women-only day rooms.

Men and women should not normally have to share sleeping accommodation or toilet facilities. Irrespective of where patients are, staff should always take the utmost care to respect their privacy and dignity. Bedroom corridors should be gender-specific and it should not be necessary for one gender to enter the corridor of the opposite gender to access their own room.

Bedroom corridor

In a mixed-sex PICU, the provision of gender-specific areas such as bedrooms, sitting rooms, gardens (if possible), bathrooms and toilets, as well as corridors linking these areas, are required in national standards and guidance (NHS Executive, 2000; DH, 2012).

It is good practice, in a mixed-sex PICU, to arrange facilities so that there is a dedicated women-only area. This should include bedrooms, bathrooms and a women-only lounge.

However, many women would prefer to be cared for in a female-only environment and being able to provide an element of choice for patients is a key matter for mental health trusts.

3.2. Gender separation

The nature of the patient population within a PICU can result in frequent disinhibited and emotionally charged behaviour.

Given the nature of the PICU population, many units opt for a single-sex arrangement. However, in some geographical areas the economies of scale result in female patients in particular potentially having to travel many miles from home to be treated in a PICU. For this and other reasons some PICU remain mixed sex.

It is particularly important that PICU design gives due consideration to gender separation and private facilities (e.g. sanitary facilities, lounge, quiet room, garden), particularly for female patients who are often in the significant minority in a PICU, and may be vulnerable.

Design considerations should ensure compliance with the latest privacy, dignity and safety guidance for mixed-sex inpatient mental health facilities and meet the same-sex accommodation requirements of the CQC (DH, 2010; DH 2011a).

The design should not require patients of one sex to transgress the facilities of the other to access mixed-sex communal areas.

Gender-separate areas should be physically separated from communal areas by doors. Bathroom and washing areas should be easily visible during general movement around mixed communal areas.

Male and female sleeping areas should be segregated and should have direct access to gender specific sanitary facilities.

Access to gender-specific areas should be controlled to ensure that they are available only to appropriate individuals. Installation of appropriately placed CCTV cameras can be helpful. These can be used to ensure the safety of vulnerable patients.

If possible, there should be gender-specific garden areas.

Transgender patients

Transgender people, including those in transition, should be accommodated according to their gender presentation and in line with their preferred gender, regardless of whether they live continuously or temporarily in the gender role opposite to their natal sex.

In a single-sex PICU, suitable accommodation should be discussed with the person involved and a joint decision made about how to proceed. Where the PICU is mixed sex, use of swing zones may be helpful (HBN 03-01, DH, 2013a: 8.36–8.39).

3.3. Disabilities

Consideration should be given to the Equality Act 2010, regarding protection for people with disabilities.

A PICU design should be wheelchair accessible, or easily adaptable for patients who are wheelchair users. 'Accessible' toilets that are designed for disabled people should be included. The operation of these will be project-specific and subject to local operational policy.

3.4. Bariatric patients

Obesity is increasing in the UK adult population and the risk of developing co-morbidities increases in line with increases in body mass index (BMI). The need for health care is increased and therefore the number of bariatric patients admitted to hospital, including PICU, will increase. A PICU should provide dignity and quality care throughout treatment based on illness and not by size and weight.

Obesity is defined as a BMI above 30; patients with a BMI over 40 are classed as morbidly or super obese or bariatric. Their needs will be related to their weight, weight distribution, girth, mobility and health status, all of which have implications for design of a PICU. Special equipment and extra support may be required to safely treat a wide range of medical conditions presented by bariatric patients.
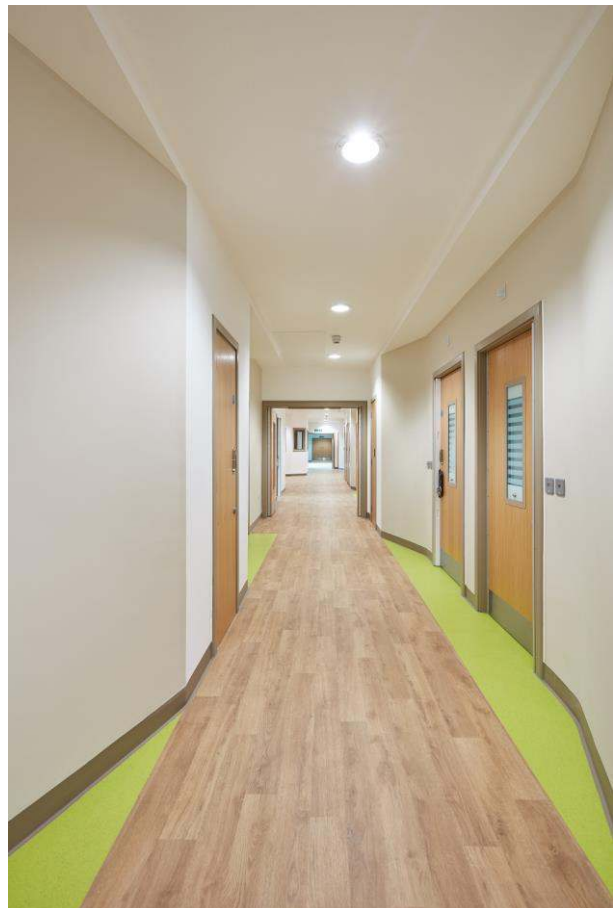
Corridor design

The PICU should ensure that the quality of care for obese and bariatric individuals parallels the care for the non-obese. In particular, the design of corridor widths, door widths, lifts and toilets to support a bariatric patient should be considered.

For more information on the requirements of obese and bariatric patients see: Bejciy-Spring (2008); Crook (2009); Matter et al. (2007); Stroupe & Sarbaugh (2008); Wright & Bauer (2005); and Wilson (2006).

Physical environment

Providing adequate space, supplying appropriate equipment and furniture are basic ingredients to improving quality of care, promoting participation, mobility and independence, and ultimately enhancing the quality of life for the bariatric patient. As standard equipment may not be appropriate for the safe treatment of a wide range of medical conditions presented by bariatric patients, a mental health trust bariatric equipment pathway should be available to the PICU.

Comfort and safety needs should be addressed whilst not drawing attention to different proportions and sizes. A variety of seating alternatives (e.g. chairs, sofas) should be included, with a residential design that fits with standard furniture styles.

Bariatric patients are more at risk of developing pressure ulcers as a result of poor circulation to fatty tissue and pressure from the sides of equipment that may cause pressure on the hips such as wheelchairs, commodes and chairs.

Therefore, it should be ensured that the correct equipment is used to support the patient's size and width and Braden or equivalent tissue viability assessment tool is assessed on admission and timely equipment sourced to support tissue viability.

4. Adjacencies

It is important that the PICU provides a protective environment that promotes a feeling of safety for patients in a time of heightened anxiety and fear. The diagram below describes how a range of spaces could be arranged to enable a transition from more public entrance and visiting spaces, through to the private and quiet sanctuary of a patient's own bedroom.
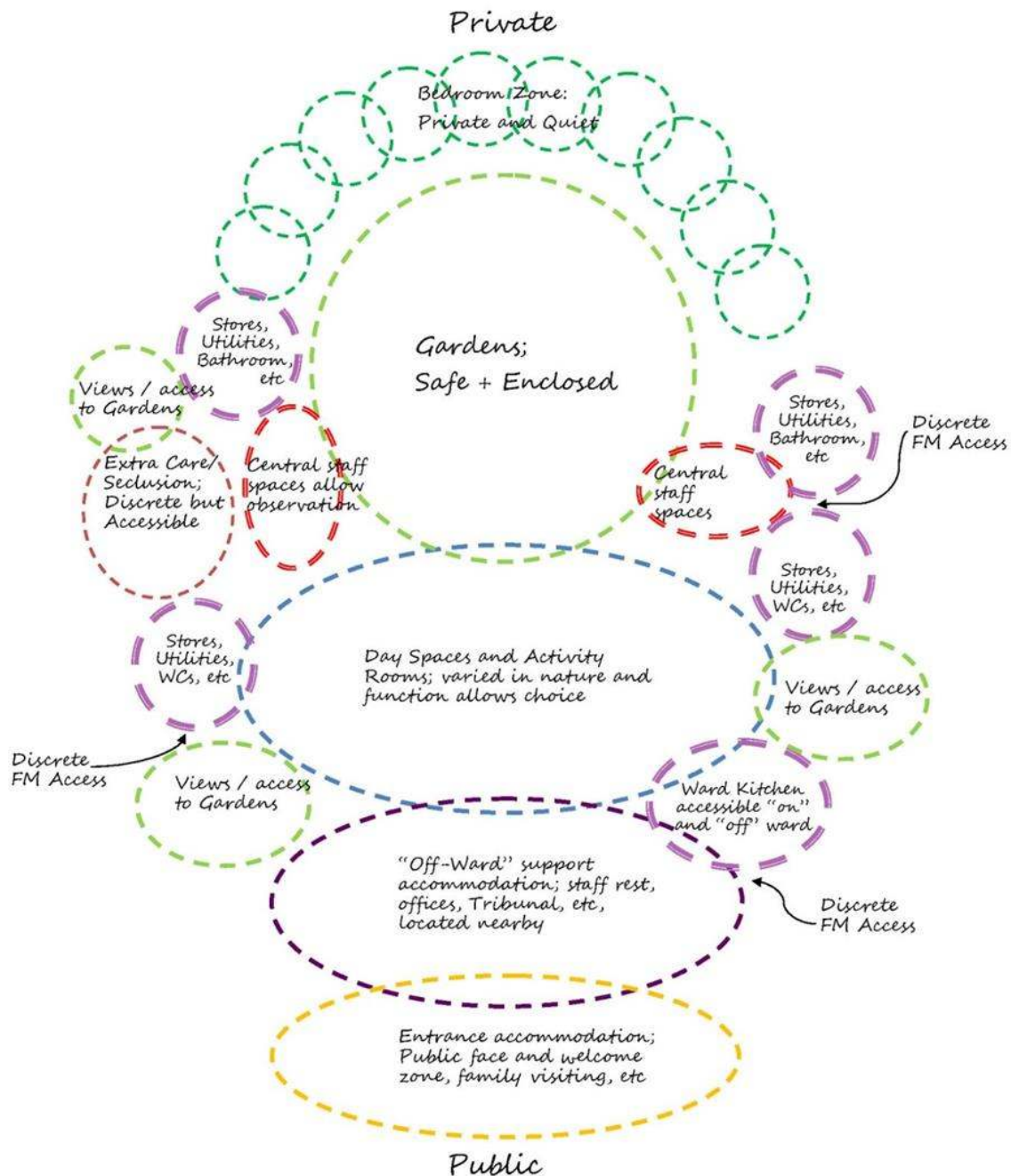
Day spaces should be designed to allow daylight, fresh air, views and access to safe and secure external gardens. Ideally a range of outside spaces should be provided to allow choice,

and in a mixed-sex PICU, access to a female-only garden space should be provided wherever possible.

Both day/activity spaces and bedroom areas should be provided with localised supporting rooms in order to reduce travel distances for staff delivering or removing goods, such as linen (see HBN 03-01, DH, 2013a: 8.173–8.180). Wherever possible, discrete access should be provided to facilities management areas to limit impact on vulnerable patients. Care should be taken to reduce risk of harm and absconding in these areas.

Observation is important in the PICU environment, and detailed discussions should review staffing models in conjunction with the model of care. It is important to enable positive interaction between staff and patients. Windows need be no more than 220–350 mm in width and 500 mm high to provide a full visual sweep of the area outside. If arranged at intervals along a wall of a centre office, windows of this type create the potential for panoramic observation without a 'fish bowl' style, allowing some privacy in the staff workstation.

Where an ECA and/or seclusion room is provided as part of PICU accommodation, the location should be considered carefully. It should be close to areas recognised as 'flash-points', such as day and dining areas, to facilitate a short distance of travel if it is to be used, but away from the hub of day spaces so that patients feel the impact of its use less. Ideally, the route to the ECA or seclusion room will not pass through a bedroom corridor.

View of garden

5. Room spaces

This chapter should be read in conjunction HBN 03-01 (DH, 2013a: Room spaces). Many of the rooms within the PICU are described in HBN 03-01, and can be designed in a similar manner. The PICU patient group may require more robust room specifications than those of an adult acute unit and more fitted furniture may be required.

Rooms associated with a mental health unit are detailed in HBN 03-01. Some rooms are also documented in the following chapter and may identify PICU specific requirement. Reference should be made to both documents.

There are some rooms within HBN 03-01 which may be included depending on the size of the PICU and the requirements for individual organisations.

HBN03-01 documents a number of rooms which will be required within a PICU and are not repeated in this document. These include:

- Unit support spaces (HBN 03-01, DH, 2013a: 8.112–8.116):
    - Service users' property store
    - Service users' utility [patient laundry]
    - Dirty utility
    - Disposal hold
- Clinical/therapy areas (HBN 03-01, DH, 2013a: 8.117–8.120):
    - Treatment room
- Staff and office accommodation (HBN 03-01, DH, 2013a: 8.171–8.172)
- Entrance area (HBN 03-01, DH, 2013a: 8.25):
    - Interview room.

5.1. Entrance

The entrance to the PICU for visitors and staff should be via either a main hospital corridor, where it is located within the larger psychiatric hospital complex, or via a single entrance point if the PICU is not connected to the main hospital. A separate vehicular entrance to the PICU will be required to ensure the privacy and dignity of distressed and vulnerable patients on admission.

A means of attracting attention for admittance to the PICU, such as a buzzer or video-com may be required at the main entrance to the PICU. This should be linked to a staffed area such as a reception office or ward office.

If the entrance area is to include a reception office, then the door should be visible from the reception office.

A canopy may be required to provide cover in inclement weather if the PICU is stand-alone or is not accessed from within a larger hospital.

The entrance door may form part of the airlock (see 7.4 below), be a locked door or may open directly into the waiting area.

A waiting area should be provided within the entrance area; this should be large enough to allow for a number of people to wait in comfort before they are given access to other areas of the PICU. The size of the waiting area will depend on the size of the PICU. It should contain a bank of lockers (possibly with clear fronts) where visitors may securely leave items not allowed within the main PICU. The waiting area and lockers should be clearly visible from the reception desk.

If the entrance door forms part of the airlock, then it should be located away from the main communal ward areas.

If the entrance door opens directly into the waiting area, then there should be an airlock into the remainder of the PICU.

Sanitary facilities for visitors may be required within the waiting area and may include a nappy changing facility.

5.2. Reception office

Where a reception office is planned for the PICU, this will form the meet and greet area for all visitors, patients and staff. It may serve as the signing-in point for security and fire management registration. The reception office should have the facility for one or two people to undertake office work as required.

If the airlock to the main PICU is not the main entrance door, it should be visible and controlled from the reception office.

The reception office may house CCTV monitors and controls as well as indicator or repeater panels such as:

- Fire
- Nurse call
- Staff attack.

If keys and alarms are stored and charged at the PICU and not taken home by staff, then the reception office will serve as the location for charger units and storage. Staff may collect and leave staff attack alarms and keys at this point on entering or leaving the PICU.

Different systems are available for key management including sophisticated electronic key allocation / tracking cabinets with biometric access control.

All key management systems should be described within a policy which would aim to:

- Reduce the possibility of keys being lost

- Allow for keys to be easily deleted from access areas of the unit in the case that they go missing

- Incorporate a system for allocating and tracking keys.

Searching and personal property management

Areas for searching patients and visitors where required should be located close to the reception area. These areas need to be able to accommodate the person being searched and at least two other people.

Provision for the placement of lockers for visitors' property should also be made close to the reception area.

5.3. Support accommodation

The following rooms should be located with ease of access to both the entrance and ward areas. If they are located close to the ward, they should be in a discrete position.

Child or family visiting room

This room should be located as close to the entrance as possible to ensure that children do not enter any further into the PICU than necessary. The room should be simply furnished with easy chairs and an occasional table, leaving space for play. It should be easy to clean and maintain, with natural light and views to the outside and easy access to baby changing facilities.

As this room will be used intermittently and be booked in advance, consideration should be given to the furnishings to allow it to be used for other purposes, such as therapeutic engagement, meetings or discussions.

If this room has access to an external space, it should not be overlooked.

Tribunal or conference suite

This room should be designed in accordance with the requirements of HM Courts and Tribunals Service (2012).

A separate waiting area may be required if it is not possible for visiting personnel to wait in the main waiting area. This will depend on the anticipated number and frequency of tribunals.

There should be a co-located interview room for use of the panel and/or legal representatives to meet with the patient.

Both rooms should have access to a telephone.

Special consideration should be given to the acoustic requirements for this suite of rooms. HTM 08-01 (DH, 2013b) offers further information.

When not in use for tribunal hearings, both the meeting room and the interview room could be used for other purposes.

Multi-faith room

This room should be located in an area away from the hustle and bustle of the day to day PICU but with ease of access for patients. It should be large enough to accommodate approximately six people and be comfortably furnished.

The environment should be calming and peaceful and offer a place for quiet contemplation for patients and staff.

A cupboard may be required in which to store religious artefacts and somewhere to place them when in use.

Co-located washing facilities for the performance of wudu may be required.

Therapy space

HBN 03-01 should be consulted regarding the possible range of therapy rooms.

The number and type of spaces required will depend on the requirements of the model of care. It should be possible for the following activities to take place:

- Arts and crafts
- Controlled access to internet and social media
- Watching television, DVDs etc.
- Physical exercise (e.g. gym space)
- Games (table tennis, board games, jigsaws etc.).

Internet access would be subject to the local trust IT strategy and individual risk assessment. Depending on the size of the PICU, one multi-functional therapy room may be the most efficient use of space and a combined wet/dry therapy room should be considered. Ideally wet activities would be to one end of the room and dry at the other, with equipment (such as computers) which should not be used when wet activity is taking place, located in locked storage at one end. Size will be dependent on the activities taking place and the number of patients and staff who will be in the room at any one time.

5.4. Communal day space

Ideally the day spaces within the PICU should be as open plan as possible. This allows free movement and interaction between patients and staff, improves sight lines for more unobtrusive observation and offers the opportunity to allow more light and air into the PICU.
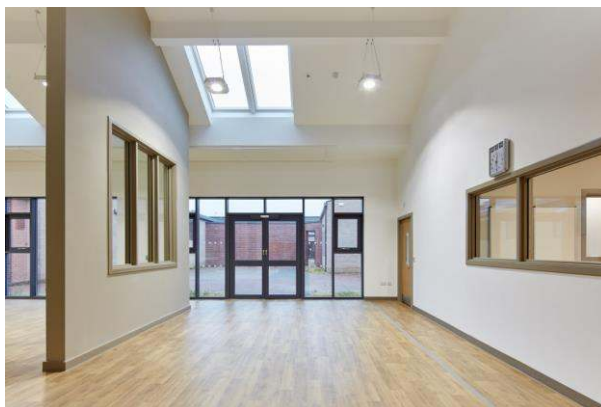
Easy access to external space

Sitting room

This area should be furnished with comfortable seating. External space should be directly accessible from here, with access being agreed following individual risk assessment. Good sightlines from the sitting room to all parts of the external space are also important.

If a television is to be located in this area, consideration should be given to the acoustic

Television lounge area

requirements and to the positioning with regard to light coming in from the external space.

Lounge or quiet room

This room should accommodate approximately four people, located away from the main communal areas to allow patients to withdraw for some quiet time. If the PICU is mixed sex, one lounge should be designated female only and include a television, following DH guidance on eliminating mixed-sex accommodation (DH 2010, 2011a, 2011c).

Games area

A games area should ideally be within the open plan communal space, rather than in an enclosed room, however, acoustics would need to be considered. The games to be undertaken in the area will need to be decided early in order to plan the space appropriately, particularly if a pool table, table tennis table or both are to be provided together with a space for electronic games or exercise machines. Secure storage may be required to allow the pool and/or table tennis table and any electronic equipment to be safely stored.

Dining room

Co-locating the dining and sitting room as open plan areas can assist in opening up the central area of the PICU and offer a variety of opportunities outside of meal times for different uses, and allow for various activities, such as arts and crafts, playing board games etc. to take place.

In a smaller PICU, consideration should be given to factoring in some additional space to ensure that the communal areas are sufficiently large to promote interaction and engagement between patients and staff.

Communal space

De-lineation of spaces can be achieved in a number of ways, including half-height partitioning, bench seating with additional storage underneath, or different flooring such as hard flooring in the dining area and textile flooring in the sitting area.

Garden

Consideration should be given to the proposed patient group and the nature of activities that may be undertaken in the garden. For example, the garden may need to be of sufficient size to accommodate a sports area, as well as seating and horticultural areas. These factors should be considered at the planning stage.

Seating and games area

It is important that the garden offers a safe and secure environment for patients. Therefore, anti-climb measures may be required to the

roof line and to overhanging branches from trees external to the space which may require regular attention.

Outside areas will require a sheltered area to allow for shaded space during the summer (NICE, 2016) and cover from the elements in less clement weather. The use of artificial grass or rubber surfaces will assist in year round use of the area and reduce the need for maintenance.

Artificial grass

Patient beverage area

An area within the communal space should be allocated to patient beverages. Consideration should be given as to whether this is a space to place refreshments made within the ward kitchen by staff members or whether a 'mini-kitchen' is required to allow patients to prepare their own drinks. If the latter is required, it will need a shutter or other means by which staff may lock it off if necessary.

Ward kitchen

The size of the kitchen will be dependent on the catering solution (cook-chill, cook-freeze or traditional service). It should be co-located to the dining area and may require a hatch for serving. Consideration should be given with regard to ease of access to the kitchen to allow for deliveries and collections. Space may be required for trolleys to be stored between meals.

The servery hatch should be easily accessible for cleaning to ensure that all areas can be thoroughly and hygienically cleaned.

Phone booth

Patients should have free access to the means to make telephone calls. This will require a local solution and could be by means of mobile phone (patients' own or a wireless telephone belonging to the PICU) **or** a fixed telephone within a phone booth located in the communal area **or** by telephone trolley.

Search/pat down room

There will be occasions when a patient needs to be searched and consideration should be given as to where this should take place. Provision of an area easily accessible from the air lock entrance may be helpful to accommodate patients returning from leave or newly admitted to the PICU.

Metals may be used in the construction of flooring and will cause some hand scanning security equipment to sound when in close proximity to the floor. Areas intended for use as search areas should have no metal reinforcement within the floor.

Ancillary spaces

Necessary ancillary accommodation is detailed in HBN 03-01 (DH, 2013a: 8.173–8.180).

5.5. Bedroom area

Bedroom and en-suite design for adults should be based on the guidance available in HBN 03-01 (DH, 2013a) and recently published national minimum standards (NAPICU, 2014).

Standard bedroom

Standard bedrooms should be a minimum of 15 m^2 including the en suite.
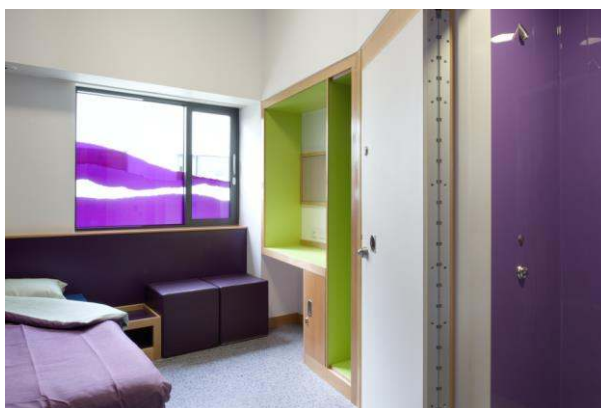

Bedroom

The bedroom door should be lockable, controlled by the patient with staff override, and lockable storage should also be provided within the bedroom.

Bedrooms should be en suite and have views out to the external areas. Where possible this view should be to gardens or courtyards.

To ensure patient safety, bedrooms should be fitted with a vision panel or other observation mechanism. This could be in the door or wall. Vision panels should be fitted either with integral blinds or 'smart' glass. The panel should normally be obscured,

Bedroom with view

allowing privacy to the patient in the room, with staff override for observation purposes.

Bedroom lights should be controlled from within the bedroom with a dimmable light switch. A switch outside the bedroom should allow staff to operate night lighting within the bedroom for observation purposes. Care should be taken to ensure that night lights are not too bright.

There are products available that allow alternative methods of regular night time observation with the aim of minimising disturbance and maximising privacy (e.g. infra-red, breathing monitors). Such products reduce the disturbance caused by regular interval (usually a minimum of hourly) night time observation.

En suite

If observation is required into the en suite, this could be achieved by means of a locked fish-eye within the bedroom.

Accessible bedrooms

Consideration should be given to larger bedrooms suitable for patients with additional needs.

Any accessible bedroom should be located close to a suitably accessible bathroom.

A bedroom suitable for a wheelchair user, or someone who may require assistance because of mobility problems would be between 17 and 19 m^2 (including en suite).

En suite shower

A bedroom suitable for an obese or bariatric patient would be between 26 and 29 m^2 (including en suite), allowing a clear space of 1.5 m^2 around the bed.

Minimum door width should be 1320 mm to accommodate bariatric wheelchairs and beds.

Rather than using a ceiling mounted hoist, a mobile hoist should be considered as this offers more flexibility. If a mobile hoist is to be used, then space will be required under the bed in order for it to operate.

In a mixed-sex PICU, two accessible bedrooms will be required, together with an assisted bathroom in each of the bedroom corridors. However, if the design is such that an assisted bathroom can be located so as to be accessible to both male and female patients without them entering a corridor used by the opposite sex, then one assisted bathroom may be considered.

Bedroom

Swing zones

In mixed-sex PICU, swing zones should be incorporated where possible to allow for a change in ratio of male to female beds (see HBN 03-01, DH, 2013a: 8.36–8.39). Generally, the number of male admissions is higher, therefore consideration needs to be given to the rooms to be included within the female area.

There may be clinical reasons why it is not appropriate for the communal day spaces to be shared by the two sexes, therefore consideration should be given to whether, as a minimum, a lounge or quiet room is located within the male and/or female bedroom areas, as well as an external area. This would then enable patients to remain within a single-sex area without being confined to the bedroom.

Standard bathroom

All doors to toilets and bathrooms, including en-suites if lockable, should be fitted with a staff override.

Bathrooms and toilets may be fitted with a vision panel to allow staff observation into the room if required. Some means of obscuring the vision panel, which can be controlled by staff only, will be required (see 5.5 above). A number of solutions are available, including observation panels that change from white to clear or 'fish eye' lenses.

Particular attention should be paid to storage of personal and hygiene items within en-suite and shared bathrooms.

Accessible bathroom

To be accessible to wheelchair users, and enable staff to care for a patient who is physically unwell, a bathroom should be a minimum of 15 m^2.

A mobile hoist should be available for use in this bathroom and may be stored in a specially designed recess with locked shutter within the bathroom. This may increase the required size of the room.
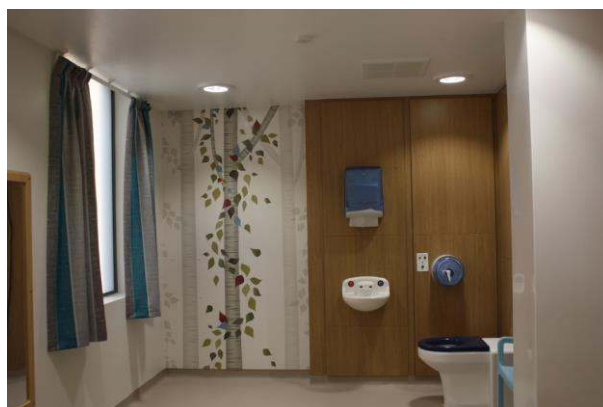
Assisted shower

Assisted bathrooms and toilets may be fitted with internal privacy curtains. Any curtain rails should be non-load bearing and collapsible.

Consideration should be given to the ablution needs of obese and bariatric patients. A bathroom would require a minimum of 7 m^2, but this will depend on whether the room has a bath or an assisted shower; the latter will require less space.

WCs suitable for use by bariatric patients should have:

- Floor-mounted toilets with a weight capacity of at least 450 kg
- Toilet seat height of 430 to 480 mm to allow the patient to rise with dignity
- A minimum turning radius of 1.8 m to accommodate larger wheelchairs
- Reinforced grab bars that hold at least 340 kg
- A sink placed further away from toilet so that it cannot be used for lift support.

In a mixed-sex PICU it is preferable to have two assisted bathrooms. If this is not possible and only one assisted bathroom can be provided, its position should meet the same accommodation requirements by ensuring that access to it does not require patients to pass through areas designated for patients of the opposite sex, or communal areas.

5.6. Clinical rooms

The clinical treatment area may consist of a treatment room or a suite of co-located rooms including the treatment room, a clinic room for storage and preparation of drugs (including controlled drugs) and a private space for drug administration (see HBN 03-01, DH, 2013a).

Whether the drug storage is undertaken in the treatment room or in a separate room the temperature should not exceed 25°C.

5.7. Extra care area

The extra care area (ECA) should provide for the daily living needs of a single patient for a limited period. It should be located away from the bedroom and living areas of the PICU and should be a quiet low-stimulus space. It will be used for de-escalation and patient support and may include a seclusion room in which a patient could be locked alone (traditional seclusion).

The location and design of an ECA and seclusion room should protect patients' privacy and dignity, and minimise interaction between secluded and non-secluded patients.

The following should be in close proximity to each other:

- A seclusion room, or de-escalation bedroom (without lock in PICU not operating traditional seclusion)
- A WC, wash hand basin and shower facility
- A sitting room with simple furnishings
- Ideally there will be an external entrance to the ECA from outside the PICU, for the admission of acutely disturbed patients
- Access to a garden
- An intercom system to the main office.

The de-escalation room could be planned as a single purpose area or it may form part of the ECA. It should be furnished with robust or lightweight furniture. The ability to dim lighting or to have sensory lighting and music within the room should be considered.

The toilet and shower facilities should be easily accessible from the de-escalation or sitting room. If a seclusion room is required then these facilities should be located with direct access from the seclusion room. Access to seclusion room en-suite facilities can be electronically

controlled from outside the seclusion room. This would allow a patient to use the toilet without staff intervention, but results in a lost opportunity for a member of staff to enter the room and assess the need for continued seclusion.

The seclusion room could form part of the ECA or a de-escalation area.

5.8. Seclusion suite

Seclusion rooms are designed to accommodate a single patient locked alone inside, with staff observation from an adjacent lobby.

The seclusion room should be a minimum of 15 m^2 (including the en-suite facility). For design guidance, see HBN 03-01 (DH, 2013a) and the Environmental Design Guide (DH, 2011b).

Ceiling height is important and the occupant of the room should not be able to reach the ceiling by standing on the bed or jumping.

The area from which staff observe the seclusion room during the time that they are supporting and observing patient, should not be used as general office space.

Appropriate stimulation/communication into the seclusion room is very important. The inclusion of artwork and/or making music or radio available to the seclusion room should be considered together with other innovations to improve the seclusion room experience, particularly if it is to be used for a prolonged period of time. Vandal proof, interactive media panels are available for this purpose. A clock, clearly visible from the seclusion room, will be required.

Careful consideration should be given to any external space as this is often small and can become a very unwelcoming area.

Windows

Windows should have solar reflective properties (to prevent solar heat gain) and also include an integral electrically operated blind, which can be operated by staff outside the room.

Windows within the seclusion room should not be approachable from the outside of the building.

If necessary daylight into the seclusion room area could be achieved by high level windows allowing no opportunity for the occupant of the room to interfere with the window or to be observed by non-authorised personnel.

Consideration should be given to providing a safe and secure opening window, which allows for natural ventilation, with integral blind. Control of opening and the blind should be remote, from the lobby by staff.

Observation and CCTV

Observation into the seclusion room should not be impeded by blind-spots.

An observation panel into the seclusion room, fitted with high performance glass will be required. This could be located in the door or within the wall.

A CCTV camera may be mounted high within the ceiling height void to give a panoramic view from above of the total area of the seclusion room.

The display monitor from the CCTV should be mounted close to the seclusion room door allowing the staff member responsible for observation to be able to intervene quickly if any problems within the room are identified.

Walls

The finish to the interior surface of the seclusion room should aim to reduce timber and mouldings and other edges.

Consideration should be given to seam welded cushioned vinyl and other materials commonly used within seclusion rooms.

En suite

WC and washing facilities should be available with easy accessibility from the seclusion room although they should not be actually placed within the seclusion room itself. The seclusion room en-suite should be designed to protect patient's privacy and dignity. Preferably, a door controlled remotely by staff from the lobby should be fitted.

Standard operating procedures should be created for when the occupant of the seclusion room needs to use the toilet facility. Where there is no door controlled remotely, this could involve staff remaining in the seclusion room side of the door which better protects dignity while still affording opportunity for supervision / intervention by listening and quick access should any problems occur.

Heating and ventilation

Any seclusion room design should pay particular attention to adequate ventilation, heating and cooling, particularly in the context of prolonged physical activity including physical intervention.

5.9. Office accommodation

A variety of office accommodation may be required and careful consideration should be given to how and where this is located in the PICU.

Consideration should be given to the use of modern technology, particularly where this allows for mobile working rather than a dedicated desk, ideally mobile working spaces offer more opportunity for staff to move about the PICU and for space to be used efficiently, rather than sitting empty when a single occupant is not there.

5.10. Staff accommodation

A staff rest room with facilities for preparing drinks and snacks should be available. The location of this should be carefully considered, together with the number of staff who will use this at any one time.

Cube lockers may be required in here for staff to leave valuables and hang outdoor clothing.

Depending on the location of the PICU and the uniform policy in operation there may be a requirement for a staff change and shower within the PICU itself. This should consist of a changing area with lockers, shower(s), WCs for both male and female staff where possible. HBN 00-02 (DH, 2016) gives guidance on the requirements.

5.11. Non-clinical support rooms

The rooms required to support the PICU will be dependent on its location and the distance to spaces which could be shared.

Reference should be made to HBN 03-01 (DH, 2013a) and HBN 00-03 (DH, 2013c) for utility and facilities management rooms.

5.12. Storage

Storage space will be required for clean linen, ideally located close to the bedroom area. Consideration should be given to the operation of this storage with regard to access to the PICU and stocking the cupboard.

Patient property storage should also be considered. Although there should be secure storage within the bedroom, storage may be

Bedroom storage

required elsewhere for larger items of patient property or for prohibited items. This storage may vary from a small cupboard to keep items in daily use for each patient, to a large room.

Storage for PICU equipment may also be required, the size of this will also be dependent on the restocking policy and the number of large pieces of equipment required intermittently by staff to assist patient care.

6.   Technical specifications

This chapter should be read in conjunction with HBN 03-01 (DH, 2013a: Building Construction and Components), relevant HTM (see Appendix 1) and guidance from the Chartered Institute of Building Services Engineers (CIBSE).

6.1. Signage

All signs should be simple, clearly visible and understandable.

Door signage should be carefully considered and form an integral part of the PICU arts and wayfinding strategy; ideally art works should be used to enhance wayfinding.

6.2. Lighting

Health and wellbeing are linked to a good sleep/wake cycle whilst a disrupted sleep/wake rhythm impacts on our functioning and health. The white paper Circle of Light highlights research findings on the influence of light on the sleep/wake cycle (Schlangen, 2014).

The research identified above and other technological advancements in relation to lighting; energy saving, controls, circadian rhythm, etc. should be reviewed at the earliest stages of a project.

Lighting should be designed in accordance with the relevant HTM and CIBSE guidance.

Care should be taken to maintain the robust and anti-ligature qualities which remain vital in PICU environments.

6.3. Doors

Consideration should be given to whether doors should open outwards to limit risk of barricade. Designers should note the requirement for additional floor area required for outward opening doors and additional forces that will be placed on the lock and strike plate when the door is being rammed from inside.

Where possible double and 'leaf and a half' doors should be avoided in patient areas, particularly on final exit routes as these can be vulnerable and can be compromised.

When assessing anti-barricade systems, careful consideration should be given to the speed of access, with a staff member in a stress situation, and the robustness of the solution to withstand attack.

Consideration should be given to the benefit of providing inward opening doors, with regards to the normalised environment, with the proviso that an anti-barricade mechanism is required. Any outward opening doors should be reviewed with regards to egress in the event of a fire.

A number of door pressure alarms are now available and these may be considered for the bedroom or en-suite door.

Door leaves should be solid core and a minimum of a very robust design able to withstand determined attack, with varied door hinge/pivot ironmongery.

Door frames should be hardwood or metal, and chemically and/or robustly mechanically fixed.

Doors to seclusion suites should be of an enhanced specification, incorporating solid hardwood frames and a solid door leaf (hardwood core with hardwood lipping to all edges). Seclusion doors should be fitted with minimum three point locking and a single anti-ligature continuous hinge.

Intumescent strips and the like to be installed in lengths not exceeding 300 mm; pin fixing should not be used.

Vision panels need to be able to withstand sustained attack, therefore, a slot vision panel is recommended (maximum 50 mm wide). Seclusion door frames should be mechanically fixed into a steel 'goal post' sub-frame subject to local policy.

Where vision panels are incorporated 'wired glass' should not be used.

6.4. Locks and ironmongery

Subject to local risk assessment, consideration should be given to the override facility for lockable doors. In the event of a key becoming snapped off in the cylinder the door it should be possible to override locks from outside the room.

Where required, electronic locks should be installed so that the hard wired component is morticed into the frame rather than the door leaf.

Electronic locks should be fit for purpose and tested for robustness and appropriateness with regards to the environment.

6.5. Windows

Windows should be designed in accordance with HBN 00-10 Part D (DH, 2013d) and HBN 03-01 (DH, 2013a); a number of options are available for screening windows.

6.6. Fixtures and furniture

Where there is no alternative to using a fixture or fitting which may be a potential ligature point, fixings should not be able to bear a load greater than 20 kg, or less should local policy require it (Cresswell et al. 2014).

6.7. Finishes and flooring

Flooring should be appropriate for the function of the space should be used. A comparative assessment should be made of the risks of poor acoustics and environmental feel in causing and managing aggression, versus the risk of serious infestation of flesh-eating bugs.

Seclusion areas should be able to withstand being steam cleaned, or similar, to ensure that they are adequately disinfected.

Consideration should be given to using textile flooring as this has advantages in reducing noise. In addition to the communal areas it can be helpful within bedrooms, particularly if a television and/or music equipment is to be located in the room. If used in the corridors outside bedrooms it can reduce the noise of staff walking in the corridor during the night, which might otherwise disturb sleep.

Where possible, flooring should incorporate cushioning below the finish to reduce physical effects on staff and patients when restraint is required. The use of carpet or carpet tiles with an impervious backing and an anti-bacteriological treatment together with the correct cleaning regime and replacement programme can reduce infection control issues.

Wall and floor finishes in the seclusion areas should be seamless and anti-pick, with smooth and rounded corners.

6.8. Internal walls

Internal walls should be constructed from either masonry or severe rated metal stud partitions. Masonry should be a minimum thickness of 140 mm high density concrete blockwork finished with a hardwall plaster and skim. Where metal stud partitions are proposed then the mental health trust should be satisfied that the perception of vulnerability is acceptable for their requirements. Metal stud partitions should be lined with minimum 12 mm thick continuous plywood sheathing both sides before plasterboards are fixed. Outer facing layers of plasterboard should be impact resistant.

Overall internal wall specifications should provide both the appropriate fire and acoustic parameters deemed necessary by the relevant HTM. Metal stud partitions should be suitably reinforced around door jambs and internal screens.

Walls for seclusion rooms should be constructed in masonry of a minimum width of 140 mm (density 1900 kgm^{-3}); given manual handling concerns it may be more practical to construct these walls in 215 mm thick blockwork (100 mm laid flat or two number leaves of 100 mm tied and reinforced with mesh). Finish to be either a hardwall plaster or if required a sand/cement render to suit wall finishes.

All openings to seclusion rooms should be provided with steel goal-post frames to enable secure fixings for doors and observation panels. The external faces (outside the suite) should be fitted with an independent wall lining system to provide the required acoustic performance.

6.9. Ceilings

Ceiling height could be approximately 3 m in some areas, where appropriate for the aesthetic qualities of the space, and fitted with skylights that increase day light into the main part of the building.

Ceilings should be of solid board or metal frame (MF) construction, not suspended ceiling construction.

Acoustic ceilings designed to diminish the extent of sound amplification and travel are helpful in managing episodes of disturbance where noises, such as shouting, may result in causing disturbances to widen.

7. Safety and security

7.1. Security levels

The levels of interior and perimeter security will be influenced by whether the PICU is located within a general adult psychiatric service or a forensic psychiatric estate (medium or high secure service).

A PICU within general adult services which admits patients with Ministry of Justice restrictions should have security characteristics which meet the low secure service standards (Tucker et al. 2012).

A PICU within or serving a high or medium secure service will require internal and perimeter security characteristics at least to the standards defined in design guidance for those levels of security. There may also be additional features arising from the unit's status as a PICU within an existing high or medium secure service estate.

It is a useful exercise to assess the individual PICU in terms of potential means for absconding so that preventative steps may be taken.

7.2. Secure gardens

There will be a secure garden area within the external perimeter of the unit. The level to which the garden is secure will largely be a matter for the PICU planning group.

The extent to which the garden may be a place for restricted items to enter the building from the outside should be assessed and considered in the design.

Secure external garden

7.3. Fences and secure boundaries

Where fencing/walling is used, the minimum height should be 3 m. The fence should be of single weld mesh.

The fencing should be on the inner side of the fence posts. Anti-climb aids should be added to impede escape attempts and improve privacy.

Where the fence meets buildings, care must be taken to ensure there are no climbing points.

The fence line should be clear to aid observation and not be obstructed by trees or shrubs.

Solid timber board flat faced fencing has the advantage of providing diminished institutional look with good privacy, anti-transgression and anti-climb properties.

Garden furniture that could be used to assist climbing should be secured in areas offering least possible climbing potential.

Where walls and window sills may offer assistance in climbing, these should be avoided. If this is not possible then preventative steps should be taken; e.g. sloped window sills, anti-climb obstacles.

An anti-climb single web mesh fence, like other items in a garden, may not be of an anti-ligature design. Procedures that detail how the garden will be used will need to consider this potential hazard and be included in an annual anti-ligature risk assessment.

7.4. Main entrance

An airlock design is required either at the main entrance to the PICU, or from the waiting area to the PICU. This should comprise two doors set opposite each other. It should not be possible for either of the doors to open unless the other is closed. If electronic locks are used, there should be an emergency override to allow for situations in which a large number of staff members need to enter or exit the PICU quickly.

There may be other doors off the airlock (e.g. to family visiting and/or staff only admin areas). Any door within the airlock should be automatically synchronised with the main doors so that no two doors can be open at the same time.

Consideration should be given to the location of the main airlock entrance. As far as possible this should be located away from the main part of the PICU. This will help prevent absconding when the entrance is in use.

It also helps to remove the focus from the main entrance, which is often the target of attempts to leave.

The airlock control system should allow for the following methods of operation:

- Touch/proximity/bio-metric activation
- Push button operation for both doors located within a staff only station
- An emergency override allowing both doors to be opened at the same time, providing for large numbers of staff to move through the entrance in cases of emergency.

Any administration area should ideally have a separate entrance to the PICU.

7.5. Fire exits

Fire safety and security are frequently in conflict. The local fire officer should be involved at an early stage of planning.

Patients may soon become familiar with a system where fire exits are secured on magnetic locks that become inactive when the fire alarm is activated and simply activate the fire alarm in order to abscond.

The most reliable method may be to secure the fire exits with staff de-activation only. This will require a clear procedure for evacuation in the event of fire.

Fire evacuation procedures may benefit from a progressive horizontal evacuation making most effective use of interior spaces, fire doors and the secure garden.

7.6. Managing aggression

Areas with free patient access, such as sitting and dining rooms, are often the location of aggressive incidents, particularly where these are small rooms. An open plan design will help to reduce the frequency of incidents and ease the relocation of a patient by physical intervention if necessary.

7.7. Locks

A variety of locks are now available. Electronic locking arrangements should be considered as they have several advantages including:

- Lost key fobs may be deleted from the system without lock replacement
- Differential access can be allocated to users (including patients)
- Effective audit for when each lock was accessed and by whom.

Keys

Electronic programmable fobs provide versatility.

Electronic locks may also be backed up with a mechanical key arrangement.

Bio-metric access assignment has the advantage of preventing key loss and easy access in emergency situations for authorised personnel.

Lock and key output specification

Locks should be silent in operation as even a seemingly low level noise generated by the mechanism can be greatly amplified and problematic at night.

Delays programmed into electronic locks should be carefully considered. To prevent one person following another through an electronically locked door, and to prevent unnecessary delays waiting for door lock in emergency situations, it is recommended that locks are set to re-engage immediately on the door closing.

Individual door locking

It is desirable to be able to lock off as many of the rooms as possible. Rooms such as the day and dining area (if not designed to be open-plan) will, for much of the time, remain open for free access by patients. There may be times however, when it will be necessary for these rooms to be temporarily restricted.

It is useful for patients to have keys to their own rooms, providing staff are able to override bedroom locks.

In any room that can be locked from the inside, care should be taken to ensure that the override system will work, even if the interior side of the lock is held.

7.8. Observation

As many clear lines of sight as possible should be available, avoiding numerous corners and corridors.

Interior windows can be aligned where possible to allow observation across a number of rooms.

All doors should be fitted with a vision panel (with the possible exception of bathrooms and toilets, see 5.5 above). This will enhance safety when moving around the PICU by ensuring that the staff and patients can see the other side of doors.

Vision panels on en-suite doors should be lockable and only accessible from inside the bedroom, not from main corridors. The purpose of the vision panel is to provide increased options for establishing the location and condition of a patient who is subject to closer observation. Their use should be governed by a clear standard operational procedure (SOP) describing how they are to be used. The SOP will often suggest a hierarchical approach including the following:

- Make standard observation into a bedroom through bedroom door observation panel

- If patient is not present and further observation is required enter bedroom and knock on en-suite door to attempt verbal contact

- If verbal contact cannot be established, or the staff member has a safety concern, access the en-suite door vision panel to establish conditions within the en-suite area

- For patients subject to very close one to one observation, the en-suite vision panel may be used to provide slightly less intrusive means of observation than being actually present within the en-suite while it is in use.

7.9. Staff and patient alarm systems

Personal alarm systems should be carried by staff. When activated these should alert others to an emergency. The basic principle of these systems is a signal sent from a hand unit to a wall or ceiling mounted sensor which has an audio-visual output.

The technology in this area is rapidly developing and new products are constantly entering the market. When considering which product will be most effective, a demonstration by the manufacturer is a necessary step. The following common problems should be avoided:

- Systems that are too directionally sensitive resulting in the need to point the hand set directly at the receiver
- Systems where the hand set is over powered resulting in the activation of several receivers confusing the exact location of the emergency
- Systems that are under sensitive resulting in the need to press the hand unit several times before the alarm is sounded.

The staff attack and nurse call system should comply with HBN 03-01 (Adult Acute Mental Health Units; DH, 2013a) and HTM 08-03 (Bedhead Services; DH, 2013e).

7.10. Patient safety

Wall mounted emergency assistance buttons with audio visual output are also a necessary fitting. These should be installed in addition to the hand-held systems as they also offer protection for the patients.

A button should be placed in all rooms and at regular intervals in corridors. There should be the provision for the system to be de-activated centrally in the event of persistent inappropriate use by patients.

Systems are now available which rely on all signals being processed by a personal computer. This has significant advantages in that all events are recorded and can be audited.

7.11. Communication systems

Two way radios are recommended; these are useful for communication around the hospital and on escorted leave. They are also of value in other situations, for example when searching for a patient who has absconded.

7.12. Transport

Access to a dedicated vehicle is highly recommended, even for an inner city PICU where public transport is easily accessible. It should be of a suitable size without having an institutional look; so-called multi-purpose vehicles (MPVs) or people carriers are ideal and

more comfortable than minibuses. The vehicle should be suitable for a variety of purposes, and would be advantageous in the following situations:

- Searching for and retrieving an absconded patient
- Taking a patient on escorted leave
- Returning a patient from escorted leave in the case of refusal to return
- De-escalation of potentially difficult situations on short trips; e.g. taking a patient to a cash point, a short trip to reclaim property etc.

Robustness is a consideration, as inevitably the vehicle will receive a harder working life than when in domestic use.

Safety should be a consideration; a vehicle with a higher European safety rating should be preferred.

8.   Infection control

The total implementation of general hospital infection control standards (HBN 00-09: Infection Control in the Built Environment; DH, 2013f) in adult acute mental health environments, without mental health specific consideration, often results in problems with acoustics and other difficulties with producing a softer therapeutic environment.

If the risk of healthcare-associated infection is to be minimised, it is imperative that architects, designers and builders be partners with healthcare staff and infection control teams when planning and designing a new PICU or renovating an older PICU.

It is often necessary to strike a balance between the risk of aggressive/difficult to treat infections (which is a major safety concern in general hospital wards) and the risk of increased disturbance and incidents resulting from poor acoustics or environmental feel (which is a major safety concern in a PICU).

Many mental health units consider that on balance, the risk of increased disturbance resulting from poor acoustics or environmental feel should take priority over the risk of infection represented by the installation of carpeting and other soft furnishings in some areas.

PICU design needs to ensure that patient areas are easily accessible to enable cleaning and maintenance.

Patients need lockers or wardrobes to store their personal possessions and clothing. Sufficient and appropriate storage will not only protect clothes and personal possessions from contamination and dust which may potentially carry micro-organisms, but also allow free access to floors for domestic cleaning.

Curtains should be able to withstand washing processes and disinfection temperatures, or be disposable.

Smooth, hard, impervious surfaces should be used for walls. All surfaces, fixtures, fittings and furnishings should be designed for easy cleaning and durability.

9.   Waste management

As a minimum, PICU waste should be segregated and disposed of in compliance with legislative requirements, the good practice set out in HTM 07-01 (Safe Management of Healthcare Waste; DH, 2013g) and in a manner which is consistent with all current regulatory guidance. In order to protect the health and safety of employees, visitors and patients, and the wider PICU environment, all waste should be appropriately stored at all times. Clinical waste is defined under the Controlled Waste Regulations 2012 (HM Government, 2012) as waste from a healthcare activity (including veterinary healthcare) that:

- Contains viable micro-organisms or their toxins which are known or reliably believed to cause disease in humans or other living organisms

- Contains or is contaminated with a medicine that contains a biologically active pharmaceutical agent **or**

- Is a sharp, or a body fluid or other biological material (including human and animal tissue) containing or contaminated with a dangerous substance within the meaning of Council Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances, and waste of a similar nature from a non-healthcare activity.

Medicinal waste includes expired, unused and spoilt pharmaceutical products and items contaminated with such products.

To ensure the compliant and appropriate management of healthcare waste, protection of human health and the environment, it is essential that all PICU follow their mental health trust's waste management policy or set of operational procedures.

The Care Quality Commission (CQC) requires organisations providing healthcare to have a number of supplementary policies available, including one for the safe handling and disposal of waste and sharps (CIWM, 2014).

It is important to ensure that all of those involved in dealing with waste have access to the policy and/or procedures and have received training in how to manage waste that they produce, handle and send for alternative treatment or disposal.

9.1. Internal

No plastic bags should be allowed in areas accessible to patients within the PICU. Patients and carers should be advised of this before or on admission to the PICU. Alternative carriers, such as handbags or cloth bags, can be used by patients and visitors to carry possessions.

All confidential waste should be destroyed by shredding or maceration, which will then be shredded and then recycled. All bulk confidential waste disposal on amnesties will be removed from site for destruction.

Waste electrical and electronic equipment (WEEE) should be disposed in accordance with current guidance regulating this process.

General equipment and furniture which is no longer required should be disposed of in accordance with the local mental health trust's policy for disposal of redundant equipment. The equipment will be required to be decontaminated in accordance with HBN 00-09 (DH, 2013f: Infection Control in the Built Environment) and a decontamination certificate issued.

Any containment should be adequate enough to prevent leakage of the waste and all containers should be sealed when full.

All staff are required to ensure that mixed municipal waste is effectively segregated from clinical waste.

Storage and packaging requirements for clinical and offensive/hygiene wastes will be subject to the system set out in the local mental health trust's waste management policy or HTM 07-01 (DH, 2013g).

Staff to ensure that confidential waste is stored in a manner that ensures it remains secure and cannot be accessed by unauthorised people.

9.2. External

Each PICU should have a designated waste storage or disposal area and waste should not be stored outside this area. Waste will be collected from these areas at a frequency determined by local circumstances.

Garden waste is the responsibility of the grounds maintenance staff who will be required to remove it, in vehicles where necessary, to the dedicated disposal point.

Garden waste should be recycled on site by natural decomposition or composting where this is practicable.

Waste produced by contractors will be stored in designated areas and in dedicated secure containers as provided by the contractor, unless otherwise agreed by the hospital Site Manager. It will be the responsibility of contractors to demonstrate a duty of care over any waste produced and disposed of by them on the site.

10. Engineering

This section should be read in conjunction with HBN 03-01 (DH, 2013a) and the latest HTM (see Appendix 1).

10.1. Engineering plant and equipment

All engineering plant must be located outside of the department wherever possible. It should be housed fully in accordance with the relevant HTM, HBN and Construction (Design and Management Regulations (CDM, 2015)

All services should run through roof walkways and drop through service risers to appropriate locations and be easily accessible.

Where an offsite building or pod is used for en-suite facilities these should have appropriate access for engineers to complete work and staff to isolate services without accessing patient bedrooms.

External mechanical and electrical equipment should be locked with keys held securely in reception area and with maintenance department.

10.2. Mechanical services

Fixings in patient areas should all be fully tamper proof.

10.3. Fire safety

Fire safety arrangements should meet the requirements of the guidance in HTM 05-01 (DH, 2013h), HTM 05-02 (DH, 2015) and HTM 05-03 (DH, 2008), and as a minimum:

- All wall finishes to be of 'Class 1' (i.e. plaster finish and painted with water based paints; no wall paper etc.)
- All soft furnishing materials to be 'flame retardant' (i.e. curtains, bedding etc.)
- Mattresses to be of a 'Crib 7' standard
- All detections systems conform to BS 5389
- Removal of ALL ignition sources (e.g. matches, lighters etc.)
- All PICU staff to be compliant in both mandatory Fire Safety Awareness training along with building Fire Procedures & Extinguisher training
- All 'duty' matrons or SNICs (Senior Nurse in Charge) should be au-fait with their duties and responsibilities including Command & Control during any fire situation.

Consideration should be given to the use of sprinkler systems, including misting systems, as part of a strategy. The use of aspirating smoke detection in areas such as seclusion rooms should be considered.

10.4. Electrical services

Light switches and sockets outlets should be of robust quality or fitted with covers so items cannot be used to tamper with the outlets and be of an anti-ligature design.

All fixings should be fully tamper proof.

10.5. Lightning protection systems

If fitted externally should be covered and protected and ensure non-ligature.

10.6. Sustainability and energy efficiency

PICU design should follow the requirements of HTM 07-07 (Building Planning and Construction in the Health Sector; DH, 2013i).

Local council rules should be checked for new build recommendations for percentage of energy required from renewable sources.

Energy benchmarks can be used for PICUs, with the benchmark for long-term residential (including mental health hospitals) for electricity being 65 $kWhm^{-2}$ and fossil-thermal 420 $kWhm^{-2}$ (as outlined in CIBSE, 2008).

Metrics should be implemented to measure sustainability. NHS Sustainable Development Unit metrics for NHS Trusts, NHS Foundation Trusts and large social care providers include organisational carbon footprint (building energy use, procurement and travel per patient contact), organisational water use per patient contact and organisation waste to landfill per patient contact. The NHS Sustainable Development Unit recommends measuring building energy use and the resultant carbon footprint, site/building footprint via Energy Performance Certificates (EPC) and Display Energy Certificates (DEC) as well as performance against BREEAM (Tennison & Fryers, 2011).

All PICUs, when rented, sold or newly built are required to have a valid EPC.

All public buildings, including PICUs, with a total useful floor area equal to or greater than 250 m² are required to have a valid DEC.

From 2018 onwards, all new leased PICUs must have a valid minimum 'E' banded EPC and this ruling applies to all existing leases from 2023 onwards. This is the responsibility of the landlord.

Air conditioning units over 12 kW must be regularly inspected by a qualified energy assessor (TM44).

The PICU should be designed with climate change adaptation and mitigation measures to reduce the impacts of a changing climate and environment in the future.

The PICU should be designed and insulated to maintain thermal comfort throughout the year. Appropriate warmth should be maintained in winter and the building should be comfortably cool in summer. Interventions and design should not intensify one option to diminish the other.

Heatwave plans should be designed for the PICU to ensure thermal comfort levels are maintained for patients. Public Health England recommends that cool areas below 26°C should be made available during heatwave incidents (PHE, 2014).

Whole-life costing should be considered when purchasing products and designing the PICU, to improve long-term sustainability.

Water consumption should be monitored to identify patterns, savings opportunities and potential leakage. Small acute or long-stay without personal laundry should be benchmarked against 0.9 $m^3m^{-2}year^{-1}$ whilst small acute or long-stay with personal laundry should be benchmarked against 1.24 $m^3m^{-2}year^{-1}$.

Water efficient technologies and fittings should be used, where appropriate, and following consultation with clinicians and infection control.

Water strategy should be implemented to act as a central reference for water issues and should include contingency plans for flooding including coastal flooding, river flooding, localised flooding and groundwater flooding.

A new build PICU should achieve BREEAM 'Excellent' where deemed possible, whilst a refurbished PICU should achieve BREEAM 'Very Good'. New build PICUs should also have a green transport plan in place.

A new build PICU should also take flood risk maps into consideration during the design process and surface water should be managed by Sustainable Drainage Systems (SuDS).

Contractors working on new build PICUs should mitigate environmental impacts during construction by implementing a Site Waste Management Plan (SWMP), the Considerate Constructors Scheme and a construction environmental management plan.

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Oxleas NHS Foundation Trust

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Pennine Care NHS Trust

Philips

P+HS Architects

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Abbreviations

BMI	Body mass index
BREEAM	Building Research Establishment Environmental Assessment Method
CIBSE	Chartered Institute of Building Services
CCTV	Closed circuit television
CDM	Construction (Design and Management)
CIWM	Chartered Institution of Wastes Management
CQC	Care Quality Commission
DEC	Display Energy Certificate
DiMHN	Design in Mental Health Network
DH	Department of Health
ECA	Extra care area
EPC	Energy Performance Certificate
HBN	Health Building Note
HTM	Health Technical Memorandum
MPV	Multi-purpose vehicle
NAPICU	National Association of Psychiatric Intensive Care and Low Secure Units
NHS	National Health Service
PHE	Public Health England
PICU	Psychiatric intensive care unit
SNIC	Senior nurse in charge
SuDS	Sustainable drainage systems
SWMP	Site waste management plan
WEEE	Waste electrical and electronic equipment

Appendix: Other useful resources

Health Building Notes

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