

STATUS IN NHSSCOTLAND
BEST PRACTICE GUIDANCE

Health Building Note 23

Hospital accommodation for
children and young people

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HBN 23
Hospital accommodation
for children
and young people

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HBN 23 Hospital accommodation for children and young people

Delivering Same Sex Accommodation – Review of Health Building Note Guidance

The Department of Health's Delivering Same-Sex Accommodation (DSSA) programme aims to all but eliminate mixed-sex accommodation from hospitals in England by 2010. Although DSSA is primarily an operational issue, the design and layout of healthcare facilities can help support the provision of same-sex accommodation. With this in mind, the Department's Health Building Note (HBN) series of publications has been reviewed against DSSA requirements.

Amendments have been made to this document at **paragraphs 2.70, 3.97 and 3.138**.

This review makes particular reference to the letter (PL/CNO/2009/2) from the Chief Nursing Officer and Director General NHS Finance, Performance and Operations at:

www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletters/Chiefnursingofficerletters/DH_098894

Full details of the DSSA programme are at:

www.dh.gov.uk/en/Healthcare/Samesexaccommodation/index.htm



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Front cover photograph:
Outdoor play area, Bristol Royal Hospital for Children

Executive summary

This document replaces the previous Health Building Note (HBN) 23, 'Hospital accommodation for children and young people' (1994). It relates closely to the Hospital Services Standard (Department of Health, 2003), which specifically addresses concerns expressed by Professor Kennedy, in his report on the Bristol Royal Infirmary Inquiry, and by Sir Herbert Laming, in his report on the Victoria Climbié Inquiry. The main aim is to ensure that children are given the best possible care and treatment in an age-appropriate way and a suitable environment ("safe and well-suited to the age and stage of development of the child or young person"; Hospital Standard, Part Three, 2003).

Wherever possible, children should be able to receive most of their care and treatment in designated children's facilities. When building a new acute general hospital, project teams should adopt the principle of a "children's hospital within a hospital".

This HBN therefore describes what form a comprehensive unit would take and identifies best practice in the built environment from a child-centred perspective. It is primarily intended for new-builds and upgrades of existing facilities. Some services may be provided in other settings, and children may need to access facilities used predominantly by adults, but in all cases the facilities should be child-friendly.

It should be read in conjunction with the overarching guidance 'Friendly healthcare environments for children and young people' (NHS Estates, 2003), which identifies the core principles in providing a friendly environment for any child who accesses healthcare facilities, whether as a patient or as a visitor. It also incorporates the views and ideas of children and their parents.

The central considerations for planners and architects when designing healthcare facilities for children are

alleviating fear and anxiety, maximising security and safety, reducing boredom, and creating a healing environment. In particular, the needs of adolescents require careful consideration. Facilities should also cater for parents and siblings, with suitable provision for overnight stay. These should include access to meals and relaxation, and must respect parents' privacy.

The design of the environment, including sensitive lighting, colour, sound attenuation, texture and materials, is essential to a child's immediate well-being, healing process and ultimate outcome. Sense-sensitive design is key, since children understand and navigate within their environment using the senses of sight, touch, hearing, taste and smell (see the overarching guidance for the guiding principles).

It is important to take into account the age of children and their stage of development; empower children in their respective environments; encourage close relationships with nature; include positive distractions such as music, art and entertainment; and avoid environmental stressors such as noise, unpleasant smells and adverse temperatures.

This guidance covers general functional and design considerations and provides detailed information on the specific design and engineering requirements for a children's unit. Included in the appendices are recommended room layouts and other ergonomic information, plus a comprehensive list of references.

Schedules of accommodation are included in [Chapter 6](#). Departmental Cost Allowance Guides have been generated from these and will be published in Quarterly Briefing and on the NHS Estates website.

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Contents

[Executive summary](#)
[Acknowledgements](#)

1 Background **page 3**

Influences

- NHS Plan
- Kennedy Report (Bristol Inquiry)
- Children's National Service Framework
- National Minimum Standards: Regulations for Independent Healthcare
- Paediatric Intensive Care: 'A Framework for the Future'
- High Dependency Working Party Report

Scope of guidance

- A "children's hospital within a hospital"
- Tertiary services
- Joint working
- Exclusion criteria

Views of users

- Views of young children
- Views of young people
- Views of relatives
- Views of staff

Creating a therapeutic environment

- Key elements

Reference to other NHS Estates guidance

Audience

2 The built environment – general functional and design considerations **page 8**

Patient group

- Babies
- Young children
- Young people
- Children with disability

Capacity planning

- Population
- Admission data
- Parents' accommodation
- Methodology for calculating room numbers

Upgrading or adapting existing buildings

Siting the children's unit

Patient journey and functional relationships

- Out-patient facilities
- In-patient facilities
- Other facilities to which children will require access

Statutory and other requirements

Construction (Design and Management) Regulations

Privacy and dignity

Disabled people

Infection control

Security

- Door locks

Environmental considerations

Design considerations

Art in hospitals

Natural and artificial lighting

Diagnostic imaging

Storage

Play facilities

Education facilities

Facilities for families/carers

Catering

Happy/calming rooms and Snoezelen rooms

Bereavement facilities

Designated smoking areas

3 The built environment – specific design requirements **page 22**

Main entrance

Main reception

- Reception desk
- Waiting/play area
- Play area
- Telephones
- Baby-buggy and pushchair bay
- WCs
- Nappy changing room
- Infant feeding room

Out-patient facilities

- Shared facilities
- Out-patient suite
- Child development centre
- Rehabilitation unit

In-patient facilities

- Shared facilities
- Day care unit
- In-patient unit

Staff support facilities

4 Other general functional and design considerations **page 47**

- Communications
 - Telephones
 - Fax
 - Patient-to-staff and staff-to-staff call systems
 - Staff-to-patient call systems
- Controlled drugs cupboard
- Fire alarms
- Internal environmental engineering considerations
 - Ventilation
 - Noise and sound attenuation
- Finishes
 - Colours
 - Floors
 - Walls
 - Doors and frames
 - Windows
 - Clinical hand-wash basins
 - Corridors
 - Maintenance and cleaning

5 Engineering services **page 51**

- Introduction
- Energy conservation and sustainability
- Space requirements for services and plant
- Design for safety
- Fire safety
- Engineering services (mechanical)
 - General scope
 - Heating systems
 - Space cooling systems
 - Hot and cold water systems
 - Ventilation systems (general)
 - General extract system
 - Foul extract system
 - Supply only ventilation
 - Ventilation in isolation rooms
 - Specialist ventilation systems
 - Environmental control and building management systems
 - Medical gases
 - Fire protection systems
 - Steam
- Engineering services (electrical)
 - General scope
 - Main intake switchgear and distribution board
 - Emergency electrical supplies

- Lighting
 - Bed-head systems
 - Information technology and telephone systems
 - Telephone systems
 - Security systems
 - Staff call, public address and public area entertainment systems
- Lightning protection
- Internal drainage
- Activity data

6 Cost information **page 61**

- Departmental Cost Allowance Guides
- On-costs
- Locational factors
- Functional units
- Schedules of accommodation
 - Schedules of space types
 - Schedules of suites/modules
 - Departmental examples
- Dimensions and areas
- Circulation
- Communications
- Land costs
- Engineering services
 - Mechanical services
 - Electrical services
 - Equipment (Group 1)

Appendices **page 95**

- Appendix 1: Consumerism
- Appendix 2: National Minimum Standards: Regulations for Independent Health care
- Appendix 3: Definitions of levels of care
- Appendix 4: Room layouts and other ergonomic data

References **page 109**

About NHS Estates guidance and publications **page 115**

1 Background

1.1 The ‘Emerging Findings’ from the Children’s National Service Framework (NSF) (Department of Health [DH], 2003) reveal that many facilities have been “designed with little acknowledgement of the differing needs of small children, older children, adolescents, parents and carers” (paragraph 2.19).

1.2 The central considerations for planners and architects when designing healthcare facilities for children¹ are alleviating fear and anxiety, maximising security and safety, reducing boredom, and creating a healing environment. Facilities should also cater for parents and siblings.

1.3 This guidance relates closely to the Hospital Services Standard (DH, 2003) of the new Children’s NSF. It identifies best practice in the built environment from a child-centred perspective, and will take every opportunity to ensure that the views and ideas of children and their parents are incorporated. It is primarily intended for new-builds and upgrades of facilities.

INFLUENCES

NHS Plan

1.4 The consumerism agenda spelt out so clearly within the NHS Plan has shifted “the balance of power” very much towards the user, with a much greater emphasis being placed on listening to patients’ views and on the improvements that are being achieved as a result.

Consumerism

1.5 The NHS Plan acknowledges that to ensure the basics of healthcare are available, investment is needed in new facilities.

1.6 “As the first priority this scale of investment will be used to get the basics right in the health service – the right number and the right type of beds, buildings, services and equipment – alongside the right number of staff” (NHS Plan 4.2 [DH, 2000]).

1.7 To reflect the investment needed to provide “consumer-focused” facilities the Departmental Cost Allowance Guides (DCAGs) take into account 36 patient “needs and desires”. For more information see [Appendix 1](#).

Kennedy Report (Bristol Inquiry)

1.8 The findings of the Bristol Inquiry (Kennedy, 2001) demonstrated that major change is needed as soon as possible in the way that children are cared for. The Report emphasises that “children are entitled to healthcare which is specifically designed to meet their needs as children” and “parents are entitled to be involved in and informed about the care of their children save in exceptional circumstances” (Chapter 29:1). The Report’s summary concludes: “For the future, children in hospital must be cared for in a child-centred environment, by staff trained in caring for children and in facilities appropriate to their needs” (paragraph 13). It also highlights that “there was too little recognition that the state of the buildings and of equipment, and the training of the staff, could cause actual harm to the children” (paragraph 14).

1.9 The Report calls for “a programme for the establishment of standards in all areas of children’s acute hospital and healthcare services”.

Children’s National Service Framework

1.10 The Children’s NSF (DH, 2004) focuses on different aspects of child health:

- hospital services;
- maternity services;
- mental health and emotional well-being;
- disabled children;
- the ill child;
- the health of all children;
- children in special circumstances; and
- medicines.

1.11 Each of these modules emphasises:

- putting children at the centre of their care;
- fitting services around their needs and their families’ needs;

¹ The overarching term “children” will be used throughout to refer to under-19s.

- listening to children and their families;
- tackling inequalities; and
- identifying services delivered by the right people, in the right place, at the right time.

1.12 NHS Estates is producing a series of HBNs to reflect the Children’s NSF, with the specific intention of linking best practice with the optimum built environment.

1.13 The Hospital Services Standard (DH, 2003) specifically addresses concerns expressed by Professor Kennedy, in his report on the Bristol Royal Infirmary Inquiry, and by Sir Herbert Laming, in his report on the Victoria Climbié Inquiry. The main aim is to ensure that children are given the best possible care and treatment in an age-appropriate way and in a suitable environment (“safe and well-suited to the age and stage of development of the child or young person”; Hospital Standard, Part Three).

National Minimum Standards: Regulations for Independent Health Care

1.14 Although designed for the independent sector, the standards (2002) are compatible with those expected within the NHS.

1.15 Chapter 5 focuses on key principles concerning ‘Premises, Facilities and Equipment’ which, along with the principles of health and safety, infection control, and the identification and minimisation of risks throughout the establishment, are integral to this guidance. Clear standards are identified for the care of children in acute hospitals (Chapter 9). Standard A16 (p 64) lists the minimum standards that must be achieved regarding the facilities and equipment needed in the care of children (see [Appendix 2](#) of this HBN).

Paediatric Intensive Care – ‘A Framework for the Future’

1.16 This report (NHSE, 1997) focuses on children requiring Level 3 intensive care (see [Appendix 3](#) for definitions of the levels of care) following trauma, major surgery or a medical emergency. The report excludes neonatal intensive care units.

1.17 Only 0.5–1.0% of all children admitted to an acute general hospital require transfer to a regional paediatric intensive care unit (PICU) (High Dependency Working Party Report, DH, 2001); however, all acute general hospitals should have the facilities and equipment to resuscitate and maintain the patient until the arrival of the retrieval team.

1.18 This HBN describes the facilities and equipment required for short-term Level 3 care in an acute general hospital. The facilities requirements for critical care are detailed in HBN 57, ‘Facilities for critical care’. The

additional support facilities required in a PICU are identified in this guidance (see paragraphs [3.225–3.231](#)).

High Dependency Working Party Report

1.19 This report (DH, 2001) was published to emphasise that the majority of children requiring Level 2 high dependency care are not admitted to a PICU but remain on a children’s ward in an acute general hospital.

1.20 The report recommends that “a number of high dependency allocated beds for every unit should be identified” (paragraph 15(d)). Each of these beds should be in a single cubicle/room. An emergency room for resuscitation is also a requirement.

1.21 HBN 23 recommends that every single room in the in-patient unit is equipped to a Level 2 standard, thus allowing maximum flexibility. In addition, the treatment room is equipped to deal with emergencies up to and including a Level 3 patient (see [paragraph 3.158](#)).

SCOPE OF GUIDANCE

1.22 Children receive treatment and care in a variety of healthcare settings: from their general practitioner (GP) in primary healthcare; in Walk-in Centres; in minor injuries units; in A&E; and in the acute general hospital setting as an out-patient, in-patient (short and long-stay), or day care patient.²

1.23 This guidance focuses on all acute general hospital facilities where children receive treatment and care. It also takes account of the needs of their parents and carers. Planning teams need to consider the shift of care to the primary care setting, with the development of different models of care, for example diagnostic and treatment centres (DTCs).

1.24 Most children will continue to receive treatment and care from their local NHS trust, the majority of which do not have a dedicated children’s hospital. This means that children need access to many of the same departments as adult patients within the general hospital. Wherever possible, however, children should be able to receive most of their treatment and care in a designated children’s unit.

A “children’s hospital within a hospital”

1.25 The concept of a “children’s hospital within a hospital”, where children are treated in separate dedicated facilities, should be adopted in a new build acute general hospital. A range of specialties may need

2 The phrase “day care” has been adopted throughout this guidance. In many policy documents this term has been superseded by “ambulatory care”.

to be brought together to produce a scale that is cost-efficient.

1.26 When refurbishing an existing building, this concept should be implemented where possible. For smaller hospitals, it may not be possible to group all the facilities together; however, the principles outlined within this guidance should be followed. Services for children should not be provided in islands of isolation for the convenience of staff.

1.27 In the majority of acute general hospitals, a designated children's unit admits children with medical problems, trauma, and those who require emergency or elective surgery. In smaller units, all in-patients will be accommodated in one area, but in larger hospitals several dedicated areas may be required (see 'Capacity planning', paragraphs 2.16–2.28). Where children need to use healthcare services predominantly used by adults, these should be child-friendly (see 'Friendly healthcare environments for children and young people', NHS Estates, 2003).

1.28 Siting a children's hospital on a general hospital site has the following advantages:

- there is co-location with the full range of specialties;
- clinicians can provide care more easily across the single site;
- for the older child who has long-term care needs, the transition to "adult care" will be easier;
- if a child has a disease that is more commonly seen in adults, it is easier for the team to work together on a single site;
- expensive specialist equipment can be shared between adults and children;
- cross-cover may be easier to arrange with a larger critical mass of staff.

1.29 See Chapter 3 for a description of a comprehensive children's unit within an acute general hospital.

1.30 Every children's unit should be designed with sufficient flexibility to reflect the differing needs and expectations of babies, young children and young people (some of whom will be nearing adulthood), of both sexes and of differing levels of physical and emotional development.

Tertiary services

1.31 Tertiary services for children are focused within regional centres. These services may be provided in a dedicated children's hospital, where children are referred, if necessary, from throughout the region. A number of acute general hospitals also function as

tertiary centres, with specialist regional units (for example burns or neurosurgery). These units admit both children and adults.

1.32 The dedicated children's hospital also provides treatment and care for children who live locally, and so functions in the same way as an acute general hospital service.

1.33 A dedicated children's hospital requires all the facilities identified for an acute general hospital, with additional specialist services such as:

- paediatric intensive care (see paragraphs 3.225–3.231);
- specialist high-dependency care (for example, for infection protection in children with immune suppression, or renal dialysis or specialist treatment of burns with ultraclean ventilation);
- recovery areas in catheter labs (see HBN 30, 'Cardiac facilities for children and young people');
- a long-term ventilation unit (to be addressed in subsequent guidance);
- a bereavement suite (see paragraphs 3.232–3.238).

Joint working

1.34 Children who spend long periods in hospital should be able to experience activities as close to their home routine as possible. Play, education and the opportunity to socialise with others are essential activities. Local Education Authorities have a duty to provide education for children in hospital.

1.35 This guidance reflects the joint working between sectors and its impact on the built environment. See also the joint Department for Education and Skills (DfES) and NHS Estates guidance on the provision of education accommodation in hospital, 'Meeting the educational needs of children and young people in hospital' (2003).

Exclusion criteria

1.36 The following facilities will not be covered in this guidance:

- maternity units for well new-born babies and well mothers, and dedicated neonatal units (see HBN 21, 'Facilities for maternity care');
- facilities for children in the primary healthcare arena;
- dedicated facilities for children with mental health problems – see HBN 43, 'Facilities for child and adolescent mental health services'. Some of these children are admitted to children's units in acute hospitals and their safety should remain a prime consideration. However, this is an operational

management issue focusing on risk assessment and constant observation of the child while they are being cared for in non-dedicated facilities;

- stand-alone DTCs and Ambulatory Care and Diagnostic Centres (ACADs);
- dedicated burns units;
- dedicated transplant units;
- dedicated dialysis units;
- operating theatres (see HBN 26, 'Facilities for surgical procedures');
- dedicated cardiac units – see HBN 30, 'Cardiac facilities for children and young people';
- respite care.

IEWS OF USERS

1.37 'Friendly healthcare environments for children and young people' (NHS Estates, 2003) outlines the views of children and their families about their hospital experiences. Comments about the built environment were frequent.

1.38 Noise levels, unpleasant odours, a lack of privacy and the inability to control temperature and lighting levels were criticisms from patients of all ages and their families. Many asked for their own bedrooms: "Why can't we have our own walls and doors with a please knock sign?" Pleasant views and the inclusion of interesting sculptures were praised by patients and their families.

Views of young children

1.39 Young children (between 5 and 11 years of age) have clear views about their experiences in hospitals. Their priorities focus clearly on being able to maintain their activities of daily living. They want to feel safe, remain close to the people they love, eat food they like, have a nice area to play in and have opportunities for "more things to do while waiting for things to happen". They dislike too much light and noise at night, feeling too hot, and unpleasant smells.

Views of young people

1.40 "Feeling embarrassed" is a frequent cause of complaint. Among other things, being on a ward with people much younger or much older was a cause of distress, particularly in the 16–18-year-old age group. The need for dedicated facilities was very evident, in order for young people to have their privacy and to feel something in common with other patients.

Views of relatives

1.41 Some families spend many weeks "living" in the hospital with their child and highly value: fresh air, natural light and a pleasant view; natural sounds such as a waterfall; and toys, models and artwork to keep their children entertained (from 'Through the Patient's Eyes: The Center for Health Design Video').

Views of staff

1.42 In addition to the need for control over temperature, lighting and noise, staff in several studies (L4A, 1990; Anshen Dyer, 1999; Redshaw & Smithell, 2000 etc) identified the following needs:

- more space "enabling us to get into bed spaces without climbing an obstacle course";
- better decor and furnishings;
- having a "unit decorated in calming colours that will influence both staff and patients. An environment that is still practical but does not look clinical";
- a cleaner environment;
- better staff facilities;
- better facilities for parents;
- better technical equipment;
- better security.

1.43 Dedicated facilities for young people were viewed as very important by nursing staff: the "child orientation of designs is not appropriate for adolescents".

CREATING A THERAPEUTIC ENVIRONMENT

1.44 Studies clearly show that the design of spaces, together with sensitive lighting, colour, sound attenuation, texture and material specification, are essential to children's immediate well-being, healing process and ultimate outcome.

1.45 Sense-sensitive design is key. The senses of sight, touch, hearing, taste and smell are all important, since it is through these that the total environment is experienced. These senses operate simultaneously to help children understand and navigate within their environment.

1.46 Planning and design teams should refer to 'Friendly healthcare environments for children and young people' (NHS Estates, 2003) for the guiding principles in sense-sensitive design. Interior designers with experience in hospital design should be consulted.

Key elements

1.47 Planning teams should:

- ensure sense-sensitive design involving all sensory receptors at varied stages of child development;
- encourage close relationships with nature, including the diurnal, seasonal and weather cycles:
 - gardens, appropriate water features,³ trees, plants, flowers, the sea, the sky, natural light and fresh air;
 - balconies, terraces, verandas, sun lounges, courtyards and window seats;
- avoid environmental stressors such as noise, unpleasant smells, adverse temperatures, glare, loss of privacy, loss of dignity, lack of environmental empowerment;
- provide appropriately sized and shaped patient areas, fulfilling functional requirements;
- ensure the key juxtaposition and location of individual rooms and departments;
- provide innovation, variety and quality;
- ensure that the functional and aesthetic requirements of furniture and fittings, fabric and finishes are met;
- ensure that medical equipment that may induce fear in children is hidden from view;
- ensure that areas of play, both internal and external, are always visible and accessible;
- include positive distractions such as interactive games, music, art and entertainment;
- empower children in their respective environments;
- provide adequate accommodation for family, siblings, friends and carers;
- address gender, cultural and religious diversity;
- address the scale and size of the child population (see [Appendix 4](#));
- ensure that most patient areas have daylight.

1.48 Appropriate risk assessments should be undertaken when considering the implementation of some of the above features.

³ Fountains should not be located inside healthcare buildings to avoid the risk of legionellae (see HTM 2040, 'Control of legionellae in healthcare premises – a code of practice'). Any water feature that can create an aerosol, for example a waterfall, should similarly be avoided.

REFERENCE TO OTHER NHS ESTATES GUIDANCE

1.49 Cross-reference is made throughout to:

- 'Friendly healthcare environments for children and young people' (2003): this overarching strategic publication identifies the core principles involved in providing a friendly environment for any child who accesses healthcare facilities, whether as a patient or as a visitor. HBN 23 builds on the good practice identified in the overarching guidance;
- HBN 30, 'Cardiac facilities for children and young people';
- HBN 43, 'Facilities for child and adolescent mental health services';
- HBN 22, 'Accident and emergency facilities for adults and children';
- HBN 57, 'Facilities for critical care';
- HBN 4, 'In-patient accommodation: options for choice';
- HBN 6, 'Facilities for diagnostic imaging and interventional radiology':
 - Volume 1;
 - Volume 2: 'BMD, dental, neuro and PACS';
 - Volume 3: 'Extremity and open MRI, magnetic shielding and construction for radiation protection'.

AUDIENCE

1.50 This guidance is primarily intended for:

- project and design teams;
- PFI consortia;
- estates directors and their staff.

It will also be of interest to:

- executive directors and senior managers of acute and primary care trusts;
- clinicians from every profession working in, or in partnership with, children's services;
- others involved in the commissioning and provision of children's services;
- NHS Foundation Trusts (for information only).

2 The built environment – general functional and design considerations

PATIENT GROUP

2.1 In England, 60 children per 1000 (under 15 years of age) are admitted to hospital each year (excluding day cases). Of these, approximately 25 are aged between 0 and 4 years, and 35 are aged between 5 and 14 years.

2.2 In a general population of 300,000, there will be 60,000 children who are 16 years or younger. Of these, 2400 will have a chronic illness and/or disability. Many of these children will require frequent admission to hospital (MacFaul, 2000).

Babies

2.3 Neonatal facilities will be included in subsequent guidance.

Young children

2.4 Young children may be dependent to a large extent on their carers meeting their daily needs and supporting their activities safely. Generally, parents or other family members remain with their children while they are in hospital, therefore planning teams should take into account their accommodation needs.

2.5 Some young children require frequent and lengthy admission to hospital. For the majority, maintaining a routine that is as close as possible to the one that they experience at home is essential. See paragraphs 2.103–2.117 on play, education, catering etc.

Young people

2.6 Autonomy, privacy, body image and self-esteem are extremely important in puberty. The specific needs of young people may be best met by providing separate facilities, but flexibility is often important as the ratio of female to male patients changes constantly.

2.7 There are a number of options, including the provision of:

- a separate young people's unit; or
- a separate young people's ward; or
- a separate area for young people in a children's or adult's ward, for example single rooms/cubicles and/or partitioned areas; and

- separate rest or recreation rooms.

2.8 This will be a local decision based on the numbers of young people, lengths of stay, case mix and so on. Where facilities allow, it is good practice to offer the young person choice.

Dedicated spaces for young people

2.9 The interior decor, artwork, furnishings and fittings should be carefully selected to reflect their needs. Many healthcare trusts now encourage young people to actively assist in the design of their own environments. Time-limited, age-related or fashionable trends should be discouraged.

2.10 Ideally, young people should have access to a dedicated recreation room, separate from young children and adults, where they can play games, watch television and videos, listen to music, use computers, and read and write. This room should be considered off-limits for staff and other children unless they are specifically invited in. No clinical interventions should take place in this room (see paragraphs 3.180–3.182).

2.11 They should also have access to dedicated quiet room (study), where they can study in peace and quiet (DfES, 2003; see paragraph 3.183).

2.12 Young people have also requested the provision of a dedicated room where they can enjoy such activities as having their hair cut, beauty therapy, and complementary therapies such as massage (L4A, 1990; see paragraphs 3.184–3.185).

Children with disability⁴

2.13 There is an increasing proportion of children living with chronic illness or disability. With improvements in treatment, children who previously would have died at an early age are surviving into adulthood.

2.14 Many children with complex disabilities and special needs require frequent admission to their local hospital. Many have their own equipment that they need to bring with them on admission to hospital; one-third of parents with a severely disabled child less than two years old use more than three pieces of equipment daily to

4 See paragraphs 4.52–5.4 of the Hospital Services Standard.

provide basic care (Children’s NSF ‘Emerging Findings’, paragraph 5.2). The recommendations in [Chapter 3](#) take into consideration both the space requirements and access issues involved with this additional equipment.

2.15 Dedicated facilities should be available for parents and carers, who will live in the hospital environment frequently and for long periods of time. The views of this patient group and their families tend to be well represented by established charitable organisations and support groups and have been taken into account in this guidance.

CAPACITY PLANNING

2.16 The total number of beds required in a children’s unit within an acute general hospital should be calculated on the basis of:

- the size of the population it serves;
- knowledge of the local underlying social trends;
- the surgical workload;
- the average length of stay (LOS) for each admission (based on local data);
- existing or proposed alternative service provisions.

Population

2.17 The accommodation described in this guidance has been calculated from a population of 300,000, of whom 60,000 will be children of 16 years or younger.

2.18 One in four children are admitted to hospital by the time they are 4 years old, the majority of whom require a short stay on a single occasion (Hospital Episode Statistics [HES] operating data, 2002, <http://www.dh.gov.uk>). Published admission data on children often includes well newborn babies in maternity

and obstetric units (MacFaul & Werneke, 2001). This leads to an overestimate not only in the number of beds/cots required but also in calculating the schedules of accommodation for children’s units, with a subsequent cost implication.

Admission data

2.19 In the majority of acute general hospitals, a designated “children’s unit” admits children with non-surgical problems (defined as paediatrics) and also those who require emergency or elective surgery (see Figure 1).

2.20 Children admitted as in-patients for elective surgery are likely to be undergoing a major procedure or have existing complex health problems. Only 20% of children requiring elective surgery need admission, the remainder being treated as day cases.

2.21 The majority of children’s admissions are for emergency paediatric (non-surgical) care, particularly in children younger than 5 years old (HES, 2002). Many have an infection and require isolation in single-room accommodation.

2.22 Joint assessment of paediatric medical and surgical beds is required, as many acute general hospitals have just one or two children’s wards that admit all specialties and all ages from less than 1 year up to and including young adults. The design of such wards should therefore be sufficiently flexible to accommodate the needs of all babies and young children, and their families, regardless of their health problems.

2.23 Between 5 and 15% of all children admitted to an acute general hospital need high-dependency care (Level 2), which takes place in a general ward with no recourse to the PICU (High Dependency Care Report,

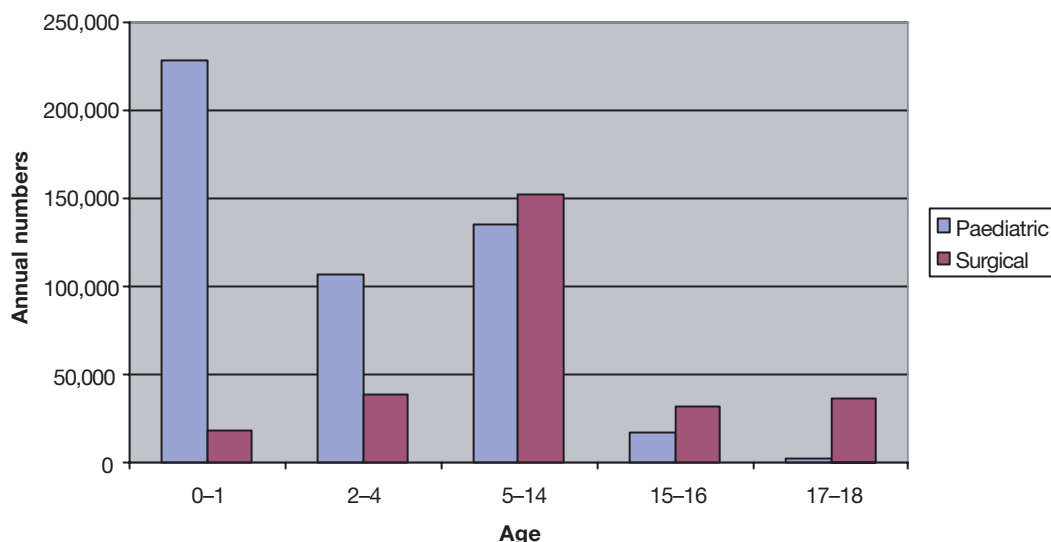


Figure 1 Age profile of children’s admissions (based on HES admission data, 2000, <http://www.dh.gov.uk>)

DH, 2001). Nearly all paediatric (non-surgical) admissions are emergencies, with a greater demand for beds during the winter months.

2.24 The data exclude paediatric surgery, which is a small subset (10–15%) of all children's surgery that usually involves more complex general surgery, urology and neonatal surgery and is performed in tertiary hospitals. The given paediatric numbers exclude well newborn babies who remain with their mothers in the maternity unit. The data also exclude the number of children who receive treatment (medical or surgical) as day cases.

2.25 Some children require specialist Level 2 high-dependency care, for example in renal units, cancer units, neurology/neurosurgery units or burns units. Specialty units frequently admit patients of all ages. Children admitted to such units should still be cared for in dedicated areas away from the adult population.

Parents' accommodation

2.26 Accommodation for parents in an acute general hospital should be calculated on the premise that at least one parent can stay with their child on a 24-hour basis (see also paragraphs 2.119–2.121). The requirements for parents' living and sleeping accommodation are outlined in greater detail in Chapter 3.

Methodology for calculating room numbers

2.27 The equation for calculating the number of in-patient beds is as follows:

$$\text{Number of beds} = \frac{\text{average LOS} \times \text{number of admissions}}{365 \text{ days} \times n}$$

(n =occupancy)

2.28 For a population of 60,000 children of 16 years or younger (general population of 300,000), the number of in-patient beds required would therefore be 20. This number excludes the bed/cot requirements for:

- surgical and medical day case interventions in a dedicated day care unit;
- paediatric intensive care in a tertiary unit;
- Level 2 high-dependency care in a specialist unit;
- neonatal intensive care in a maternity/obstetric unit.

UPGRADING OR ADAPTATIONS OF EXISTING BUILDINGS

2.29 Before a decision is made to carry out an upgrading project, consideration must be given to the long-term strategy for the service, the space required for

the new service, and the size of the existing building. Regard must also be paid to the orientation and aspect of the building; whether key requirements can be met; and the adequacy and location of all necessary support services.

2.30 If the preferred solution is to upgrade the existing facilities, the functional and physical condition of the building should be thoroughly examined. The check of physical and other aspects of existing buildings should include:

- the availability of space for alterations and additions;
- the type of construction;
- insulation;
- the age of the buildings and condition of fabric, for example external and internal walls, floors, roofs, doors and windows, which may be determined by a condition survey;
- the life expectancy and adequacy of engineering services, ease of access and facility for installation of new wiring, pipework and ducts, if required;
- the height of ceilings – high ceilings do not necessarily call for the installation of false ceilings, which are costly and often impair natural ventilation;
- changes of floor level that are hazards for disabled people;
- fire precautions;
- physical constraints to adaptation, such as load-bearing walls.

2.31 When comparing the cost of upgrading or adapting an existing building to that of a new building, due allowance, in addition to the building cost, must be made for the cost of relocating people, demolition, salvage costs, disruption of services in a phased project, and the temporary effects on running costs of any impaired functioning of areas affected by upgrading.

SITING THE CHILDREN'S UNIT

2.32 In a new build acute general hospital, the children's unit should be located on the ground floor, with external views and access to green spaces and play areas. Children and their families should be able to access external play areas directly from the children's unit.

2.33 A key issue is providing external and internal access for patients, their carers and visitors while ensuring total security.

PATIENT JOURNEY AND FUNCTIONAL RELATIONSHIPS

2.34 The following diagrams and text describe what the different journeys of a child might resemble. In an acute general hospital serving a population of 300,000, all the facilities described will be present; however, the out-patient facilities and rehabilitation unit may be shared with adult services. The child development centre (CDC) and rehabilitation unit are traditionally located on an acute general hospital site, but alternatively may be located in a community setting. The primary care trust (PCT) decides where best to locate these facilities depending on local needs. The space considerations will be the same as described in [Chapter 3](#).

2.35 The children's unit is divided into three main areas:

- out-patient facilities;
- in-patient facilities;
- staff support facilities.

2.36 The three areas are adjacent and interlinked through security-controlled doors and monitored by CCTV. The concept of a children's hospital within an acute general hospital will ensure that essential support facilities, for example operating theatres, A&E and imaging, are easily accessible (see [Figures 2 and 3](#)). Even though the children's unit has a dedicated entrance, there will also be restricted access via the

main hospital street for the purposes of transferring patients to other departments and also to enable clinical staff to enter in an emergency.

2.37 In a new building, all patient facilities should be located on the ground floor. Staff support facilities should ideally be adjacent to the patient facilities, but if space is at a premium they can be located on the first floor, provided that dedicated lifts/staircases are installed within the children's unit. Staff should not have to cross the main hospital street.

2.38 The majority of children, parents and carers, and other visitors will enter the children's unit through the dedicated entrance (see [Figure 3](#)). All children who are elective admissions or out-patients will also arrive through this dedicated entrance. A child who is being admitted as an emergency will arrive either via the A&E department directly from the main hospital street or through the children's dedicated entrance.

Out-patient facilities

2.39 The out-patient facilities provide accommodation for the out-patient suite, the CDC and the rehabilitation unit, the last of which will accommodate both out-patients and in-patients in separate rooms.

Out-patient suite

2.40 The main functions of the out-patient suite are:

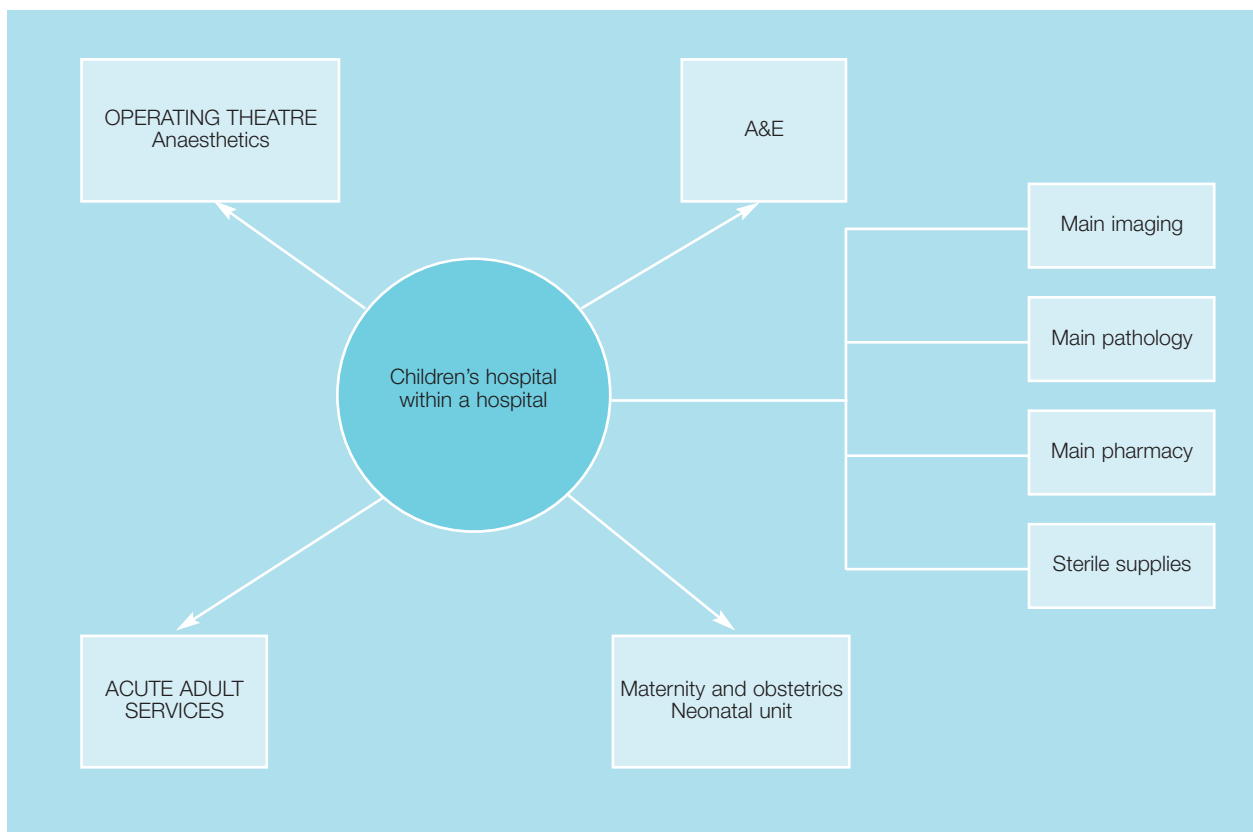


Figure 2 Relationships with other departments in the main hospital

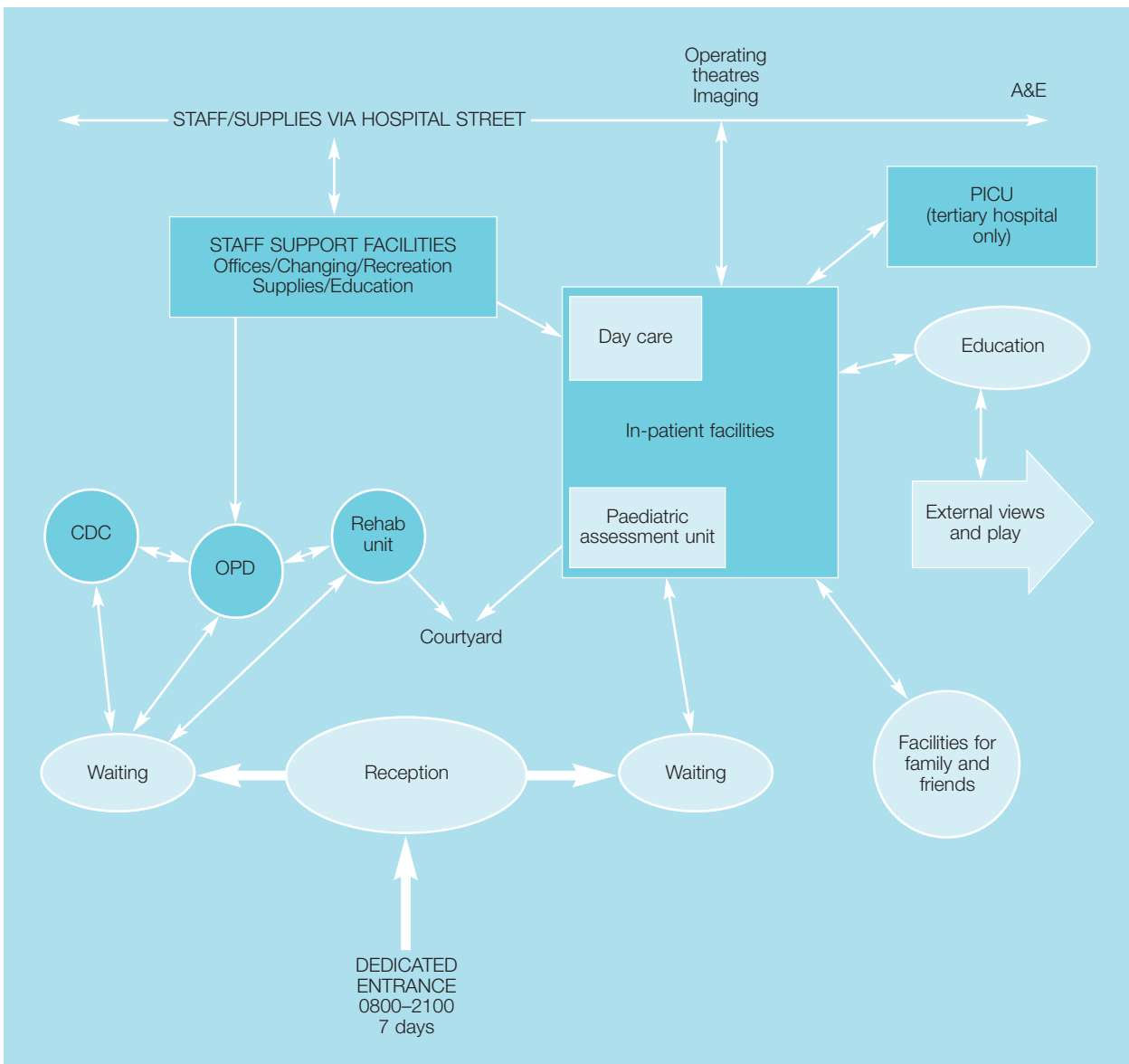


Figure 3 Relationships with the children's unit

- specialist consultation and examination;
- the screening of children who may need to be admitted as day patients or in-patients;
- the treatment of children who do not need to be admitted to either a day care unit or an in-patient ward;
- following up and monitoring the condition of out-patients and day patients;
- the discharge of in-patients, with referral if necessary to other health services.

Child development centre

2.41 A CDC requires facilities for:

- assessments arising out of referrals made in connection with child health surveillance in primary care settings;
- assessment of the needs and abilities of children in accordance with statutory requirements, such as those in the Education Act 1981, the Children Act 1989, the Chronically Sick and Disabled Persons Act 1970 and the Disability Discrimination Act 1995.

2.42 The activities that take place in the CDC assessment rooms include:

- observation of children's responses to adults in given situations and of their interaction with other children;
- observation of children's performance in "free play" by, for example, a teacher, a play specialist, and/or a psychologist;

- simple free-field testing of hearing, sight and speech, with more thorough investigations being carried out in the out-patient suite.

2.43 Flexible accommodation should be provided for all disciplines involved in the multidisciplinary assessment of vulnerable children, and those with special needs or disabilities. This will be based on local requirements.

Rehabilitation unit

2.44 The rehabilitation unit requires facilities that enable children to regain their maximum level of health and mobility following illness or injury.

2.45 It should be able to accommodate children who require a variety of clinical interventions (see paragraph 2.47). A number of these children will have complex health problems and needs. The unit will be accessible by both out-patients and in-patients.

2.46 This guidance focuses on a bespoke rehabilitation unit. Planning teams should incorporate the views of the therapy professions in the design of the unit. In tertiary centres, specialist rehabilitation units may be required, for example in a burns unit.

2.47 The rehabilitation rooms will be used primarily for:

- clinical interventions by physiotherapists and/or occupational therapists;
- speech therapy;
- group activities organised by a teacher and other members of staff;
- special training or discussion sessions for parents of disabled children.

2.48 In a tertiary centre, a hydrotherapy pool may be provided.

In-patient facilities

2.49 The in-patient facilities provide accommodation for the day care unit, the in-patient areas, the paediatric assessment unit and, in tertiary hospitals, the PICU. The admission room should be located close to the entrance and sub-wait so that if a child cannot be admitted for any reason at this stage they can be discharged without coming into contact with the in-patients.

Day care unit

2.50 The day care unit admits children as elective day patients for medical investigations and/or treatment, or for surgical procedures. The unit functions independently of the in-patient unit; however, they are co-located so that additional support is available in the event of an emergency.

2.51 Investigations and/or treatment will be carried out in the treatment room in the unit or in a diagnostic department elsewhere in the hospital.

2.52 Surgical procedures will normally be carried out in an operating theatre in the main hospital (see HBN 26, 'Facilities for surgical procedures').

2.53 For the majority of patients in the day care unit, clinical intervention is therefore minimal. A smaller number of people require access to the fully equipped treatment room (see paragraphs 3.127–3.133).

2.54 Most children arriving at the day care unit for elective procedures are generally in good health. Staged admissions limit the length of time they need to wait before their treatment commences.

In-patient unit

2.55 The main purpose of the in-patient unit is to provide accommodation and facilities for the assessment, diagnosis, treatment, nursing care and rehabilitation of acutely ill children. In smaller acute general hospitals, only one in-patient ward for babies, children and young people may be required. In larger acute general hospitals, more than one ward may be required (for example for paediatric medicine and surgery).

2.56 The design should be sufficiently flexible to accommodate children of all ages, cultures and ethnicity, and with a wide variety of health problems and needs.

2.57 Ward-based treatment rooms should be provided. Dedicated support facilities are required in the in-patient area for the different age groups, for example a playroom for young children and a recreation room for young people. Education facilities are required.

Paediatric assessment unit for emergency patients

2.58 This room is located in the in-patient area and utilises the same support facilities. Children are referred here for assessment by the paediatric team following urgent referral from either A&E or from the community. Subsequently, they may be discharged home, admitted as an in-patient or transferred to a specialist unit if necessary.

Other facilities to which children will require access

2.59 The following paragraphs describe facilities that will not be located within the children's unit for the foreseeable future. These facilities will be shared by patients of all ages.

Surgical facilities

2.60 These include operating theatre suites, recovery areas and day surgery facilities. The majority of children

undergo surgery as a day case in a variety of settings, each of which should be adapted to create a child-friendly environment.

2.61 Many children, by necessity, are transferred to an operating theatre department that predominantly treats adult patients. In some specialties, the number of children needing an operation is small and it is not justifiable to design and build dedicated operating theatres. Segregated recovery areas for children are, however, essential.

2.62 Planning teams need to take into account that parents (or carers) are increasingly encouraged to accompany their child on their journey to the anaesthetic room. In recovery, children and their parents should be separated visually and acoustically from adult patients.

Imaging services

2.63 A significant proportion of patients attending the children's unit need some form of diagnostic imaging. Some children may require immediate access to diagnostic services and constant clinical assessment and intervention by a doctor or nurse. Therefore, a dedicated imaging suite located within the children's unit is best practice (see HBN 6, 'Facilities for diagnostic imaging and interventional radiology', Volume 1). As a minimum, a mobile imaging unit will be required within the children's hospital, and adequate space is needed for parking this equipment. An illuminated X-ray viewer will be required.

2.64 Imaging suites located outside the children's unit should be in close proximity. They will be utilised by the adult population but should be child-friendly while respecting clinical considerations (see also 'Friendly healthcare environments for children and young people', NHS Estates, 2003).

2.65 The environment in these facilities may feel hostile. Maintaining the privacy, dignity, security and comfort of children is a key consideration. Children may expect pain and/or discomfort. They may fear the unknown, the intimidating equipment and the forced intimacy with strangers. The skilful use of colour and texture in selected materials is essential. Indirect perimeter lighting can create a pleasant, subdued ambience. Ceiling-mounted artwork is of great benefit in distracting a child undergoing procedures that require them to remain still. Where possible, larger items of equipment should be disguised or hidden. Ideally, equipment, interior decor and staff uniforms should be designed together in terms of a theme or colour that will appeal to all age groups.

Out-patient departments

2.66 Out-patient clinics should take place in a designated paediatric environment wherever possible. Many children attend out-patient clinics that are not dedicated to children but which focus on a specialty. This is justifiable in some instances because there are limited numbers of children requiring appointments, and because costly specialist equipment is required. In this case, each clinic should have a segregated child-friendly area. Otherwise, planning teams should take into account that adults do not object to waiting in an area designed with children in mind. Appointment times can be cohorted, with adults first and then children towards the end of a clinic; there are many movable items that can be imported at that time to make an environment more child-friendly.

Accident and Emergency departments

2.67 In acute general hospitals, children attend the A&E department that is also attended by the adult population. In a tertiary children's hospital, there will be a dedicated children's A&E department. See HBN 22, 'Accident and emergency care facilities for adults and children' and 'A&E services for children' (RCPCH, 1999) for guidance.

PRIVACY AND DIGNITY⁵

2.68 Preserving the privacy, dignity and confidentiality of patients is essential at all times. The NHS Plan suggests that the design of facilities should "show a focus on the dignity of patients and their relatives and respect for their needs, and a thoughtful approach to facilities which can make a hospital stay – one of the most stressful incidents in life – a more comfortable and less worrying experience".

2.69 Privacy, dignity and confidentiality are key considerations in out-patient consultation and in-patient admission facilities. In the rehabilitation unit, young people should not be expected to undertake their programmes in front of young children, so dedicated facilities should be provided wherever possible. Children with speech difficulties suffer great embarrassment and are reluctant to speak if they can be overheard, so discrete and sound-proofed rooms are essential for this specialty.

2.70 Sufficient space is required in bed spaces to allow for both aural and visual privacy during clinical consultation and intervention and at visiting times with family and friends.

⁵ See paragraphs 3.10 and 5.4 of the Hospital Services Standard.

Note: We recognise that for many children and young people, clinical need and age and stage of development may take precedence over gender considerations, and mixing of the sexes is reasonable, or may even be preferred. There is evidence that many young people find great comfort from sharing with others of their own age and often, this outweighs their concerns about mixed-sex rooms. Young people should be given the choice.

Washing and WC facilities need not be designated as same-sex as long as they accommodate only one patient at a time, and can be locked by the patient (with an external override for emergency use only).

Decisions should be based on the clinical, psychological and social needs of the child. This approach should be conveyed to the child (where they are old enough to understand), and their parents. If they would prefer to be nursed in proximity to members of their own sex, this preference should be accommodated. (Ref: PL/CNO/2009/2).

DISABLED PEOPLE

2.71 It is essential to ensure that suitable access and facilities are provided for people who have problems of mobility or orientation. This includes people who use a wheelchair, those who have difficulty in walking, and those with a visual or hearing impairment. Authorities must comply with the provisions of the Disability Discrimination Act 1995 and the Building Regulations, Approved Document M: 'Access and facilities for disabled people' (DETR, 1999).

2.72 Local representatives of people with disabilities should be consulted regarding the planning of spaces used by patients and escorts. Planning teams should also refer to HBN 40, 'Common activity spaces' and HFN 14, 'Disability access'.

INFECTION CONTROL⁶

2.73 Reducing the incidence of healthcare-associated infection (HCAI) is a major challenge for all those working in healthcare. Within the children's unit, it is essential to protect patients who are immuno-compromised and at high risk of acquiring an infection. Other patients may have a communicable or infectious disease. See [paragraphs 3.143](#) and [5.60–5.61](#).

2.74 Infection control teams should be consulted at the outset of any new build or renovation project. They will assist with issues such as storage and equipment cleaning areas, appropriate types of ventilation system, furnishings and appropriate finishes.

2.75 For further information refer to HFN 30, 'Infection control in the built environment'. This document should be the first point of reference for planning teams with regard to infection control.

2.76 Strict adherence to clinical protocols that are designed to minimise the risk of cross-infection is paramount. In addition, the environment in the children's unit should reflect the need for easy and thorough cleaning on at least a daily basis. Localised cleaning may be necessary at any time. The walls and floor surfaces selected should therefore be suitable.

2.77 Maintaining a clean environment is partly dependent on employing an adequate number of informed housekeeping staff and supplying them with the correct tools for the job. Supplying properly designed waste disposal bins in appropriate positions will also help reduce the amount of detritus. Frequent emptying of these bins is essential.

2.78 Clinical staff have a responsibility to ensure that the unit is kept clean by the correct disposal of equipment, and to immediately report any spills or dirty areas to housekeeping staff.

2.79 It is well documented that inadequate and infrequent hand hygiene by clinical staff is a significant cause of cross-infection. To encourage scrupulous hand hygiene practice, the number of clinical hand-wash basins should be adequate and their location decided by the infection control team in conjunction with clinical staff. Alcohol hand-rub dispensers must also be provided. Space should also be provided for sharps bins so that sharps can be discarded at the point of use.

SECURITY⁷

2.80 Maintaining the safety and security of children should be the top priority. See 'Friendly healthcare environments for children and young people' (NHS Estates, 2003, p 30). The use of CCTV as a means of monitoring the movements of children and others who may have access can provide extra assurances to staff and patients.

2.81 The use of tagging for babies and young children who are in-patients should be considered by the planning team and, if adopted, the engineering requirements need to be addressed. Urgent help can be summoned via a direct link to hospital security in the event of an emergency.

Door locks

2.82 Doors to rooms that should not be entered by young children should be fitted with high-level latches.

6 See paragraph 4.22 of the Hospital Services Standard.

7 See paragraph 5.3 of the Hospital Services Standard.

Where rooms require privacy, the doors should be fitted with “free-to-escape” emergency release. In this case, thumb-turn locks are not appropriate, as they can be easily tampered with by young children and cause panic in an emergency.

2.83 Door control systems should be provided to all entrance/exit doors to prevent accidental egress. They should be controlled externally with close proximity cards and internally by a press-to-release switch at a high-level. They will also be operated from the communications base, coupled with an audio-speech facility between the entry door and the communications base for identification purposes. Door control systems must be capable of manual or automatic release on initiation of the fire alarm system.

ENVIRONMENTAL CONSIDERATIONS

2.84 The impact of any new procurement on the environment is of significant importance and is an integral part of NHS responsibility for the health and well-being of the community. Care must be taken to contain the environmental impact of activities to a practical minimum consistent with maintaining responsibilities for providing high-quality patient care. Commitment to the requirements of the Environmental Protection Act 1990 and all other relevant statutory legislation is essential. See ‘Sustainable development: Environmental strategy for the NHS’ (<http://www.nhsestates.gov.uk>) for environmental considerations when designing and building healthcare facilities. See also ‘Sustainable development in the NHS’ (NHS Estates, 2001).

2.85 All future capital development schemes are required to score business case submissions against the NHS Environmental Assessment Tool (NEAT). (For further information see http://www.nhsestates.gov.uk/sustainable_development/content/construction.html.)

2.86 It is particularly important to:

- encourage the efficient and environmentally friendly use of energy by promoting energy conservation and, where economically viable, investing in energy-saving technology and management;
- provide environmental training to appropriate staff, and ensure that all staff are aware of environmental policy and how they can contribute to overall environmental performance;
- promote waste minimisation and reduce the environmental impact of waste through beneficial use, where practical, or safe disposal where not;
- reduce pollution of air, land and water (where practicable).

DESIGN CONSIDERATIONS

2.87 Designers should create an environment in the children’s unit that will help patients feel at ease, be conducive to efficient working, and contribute to staff morale. (Reference may be made to ‘Demonstrably different’ and ‘First impressions, lasting quality’ issued by the Department of Health, and ‘Environments for quality care: health buildings in the community’, NHS Estates, 1994.) For information on understanding the five senses in relation to design, see ‘Friendly healthcare environments for children and young people’ (NHS Estates, 2003).

2.88 Indoor planting and external landscaping are of special value. Imaginative use of floor and wall finishes,





Paintings on corridor walls and in reception area, Walton Centre for Neurology and Neurosurgery

colour and lighting will help to produce a warm and friendly atmosphere in the children's unit.

2.89 The design process should include the choice of well-designed furniture and fittings, and co-ordination of flooring and wall finishes and colour. All areas should be decorated in calming colours such as pastel shades, which are generally preferred by patients and staff. When choosing and positioning furniture and fittings, the size and reach of patients should be considered. Fittings and furniture with sharp corners should be avoided. See pp 30–35 of 'Friendly healthcare environments for children and young people' (NHS Estates, 2003) for guidelines on preventing children from having accidents.

ART IN HOSPITALS

2.90 Works of art and craft can contribute significantly to the internal environment. These need not be limited to simply pictures on a wall. Every opportunity should be taken to include works by artists and craftspeople in appropriate spaces in the unit. These may include paintings, murals, prints, photographs, sculptures, decorative tiles, ceramics, textile hangings and furniture; the reception desk can also be used in a creative way.

2.91 Works of art and craft often lend special identity to individual spaces and help give a sense of locality.

2.92 Advice should be sought from experts on:

- obtaining grants. In some cases, moneys for art within a capital scheme can be matched by grants from charities or regional arts boards;
- ensuring quality in all art and craft works;
- appropriately locating art and craft works;

- selecting artists and craftspeople.

2.93 Advice should also be sought from the infection control team on the appropriate use of art in hospitals.

2.94 See also 'The art of good health: using visual arts in healthcare' (NHS Estates, 2002) and 'The art of good health: a practical handbook' (NHS Estates, 2002).

NATURAL AND ARTIFICIAL LIGHTING

2.95 Sunlight enhances colour and shape and helps to make a room bright and cheerful. The harmful effects of solar glare can be dealt with by architectural detailing of window shape and depth of reveals, as well as by installing external and internal blinds and curtains.

2.96 Natural lighting is important to the well-being of patients and staff. Wherever possible, spaces to be occupied by patients, escorts and staff should have natural daylight with an outside view.

2.97 Artificial lighting, as well as providing levels of illumination to suit activities, can make an important contribution to interior design. Designers should develop a lighting scheme that will help to promote a high-quality image for clinical activities in the children's unit and a non-clinical, soft environment in as many spaces as possible.

2.98 Artificial lighting provided in spaces occupied by patients should enable changes to skin tone and colour to be clearly defined and easily identified.

2.99 Luminaires should not be mounted on ceilings immediately above positions where patients lie on a trolley. This applies to all patient spaces.

DIAGNOSTIC IMAGING

2.100 There are a number of statutory requirements relating to diagnostic imaging that each planning team must take into account. These include the following:

- the 1999 Ionising Radiations Regulations (which focus on protecting staff);
- the 2000 Ionising Radiations (Medical Exposure) Regulations (which focus on protecting patients);
- the 1993 Radioactive Substances Act (which is concerned mainly with the safe use of radioactive substances).

2.101 Codes of practice issued by the Health and Safety Executive and the National Radiological Protection Board should also be adhered to. Further information regarding these requirements is detailed in HBN 6 Volume 1, 'Facilities for diagnostic imaging and interventional radiology'.



Children in playroom, Oxford Radcliffe Hospital. Photographer: Lisa Payne

STORAGE

2.102 All babies and young children require a lot of equipment to support their activities of daily living, for example buggies, high-chairs and play-pens. This equipment is bulky, and additional storage space must be provided in all healthcare facilities that cater for babies and young children over and above the standard accommodation for general equipment.

PLAY FACILITIES⁸

2.103 The importance of play for children, and the unique role of the hospital play specialist, are described in 'Friendly healthcare environments for children and young people' (NHS Estates, 2003, pp 37–38). Play specialists should be included on the planning team when designing a new children's unit or refurbishing an existing one. Spaces for play are an essential requirement in all patient areas.

2.104 A playroom is required in the in-patient accommodation where children can participate in a range of different activities simultaneously. No clinical interventions should take place in this room. See [paragraphs 3.171–3.176](#) of this HBN.

Outdoor play areas

2.105 Children should have the opportunity to run and move about freely, even in the hospital environment. The availability of external play spaces may well contribute to

a reduction in stress and disruptive behaviour. Where possible, children should have access to courtyards, patios, verandas, terraces, roof gardens and adventure playgrounds.

2.106 Advice from play specialists and landscape architects should be sought during the early planning stages. The Sure Start Initiative (forthcoming) makes a number of recommendations for planners when designing external play spaces. These are set out in 'Friendly healthcare environments for children and young people' (NHS Estates, 2003, p 38).

EDUCATION FACILITIES⁹

2.107 'Access to education for children and young people with medical needs' (DfES/DH, 2001) sets out minimum national standards for the education for children who are unable to attend school because of their medical needs, in whatever setting.

2.108 See the joint DfES/NHS Estates guidance 'Meeting the educational needs of children and young people in hospital' (2003) for detailed guidance on the provision of education accommodation in hospital. The key design elements are listed in [paragraph 3.221](#) of this HBN.

2.109 "It is critical that planning the education facility begins at the early stages of planning the whole hospital

8 See paragraphs 3.7–3.8 of the Hospital Services Standard.

9 See paragraph 3.9 of the Hospital Services Standard.



Courtyard, Walton Centre for Neurology and Neurosurgery



Courtyard, Queen's Park Hospital, Blackburn



Child choosing meals, Oxford Radcliffe Hospital. Photographer: Lisa Payne

project, whether it be a refurbishment or new build” (paragraph B1 of the joint guidance).

2.110 The accommodation required will vary depending on the size and approach of the hospital and the Local Education Authority. For example, some hospitals may teach young people in a separate area from younger children, reflecting ward arrangements. It is therefore essential to consult all key participants (from clinical to educational and support staff) at the earliest stage in the design process.

2.111 Planning teams should read both documents in conjunction with the complementary guidance ‘Friendly healthcare environments for children and young people’ (NHS Estates, 2003).

CATERING¹⁰

2.112 All patients should have access to catering facilities 24 hours a day. In the in-patient accommodation, separate dining facilities, away from the playroom and bed spaces, should be made available for babies, young children and their families. Wherever possible, a dedicated space should be provided for young people and their families.

2.113 Planning teams should refer to ‘Better Hospital Food Programme: Catering services for Children and Young Adults’ (NHS Estates, 2003) for “gold standards in the provision of catering services to children and adolescents”, as it impacts on the design of out-patient, in-patient, play and education facilities. Further

information about catering in hospitals can be found at <http://www.betterhospitalfood.com>.

FACILITIES FOR FAMILIES/CARERS

2.114 Workshops for parents run by the Children’s Heart Federation revealed that inadequate or poor accommodation for families adds to the considerable stress already being experienced by the family (<http://www.childrens-heart-fed.org.uk/regents%20report.htm>). There is currently a significant lack of resident and non-resident facilities for siblings.

2.115 As a general principle, parents/carers should be encouraged to stay with their child in hospital.

2.116 All single bedrooms should provide sufficient space for a bed for a parent. All bed spaces in a multi-bed room should accommodate at least a reclining chair. Individual project teams should decide to what extent additional accommodation for resident parents is required within the children’s unit. Bathroom facilities should be en-suite.

2.117 In units where critically ill children are cared for, it should be possible for at least one parent or carer to remain with their child overnight. The accommodation should be adjacent to the children’s unit, as families need to be certain that they can return to the patient’s bedside immediately if required. There should be a family room with en-suite facilities for every bed space.

¹⁰ See paragraph 5.9 of the Hospital Services Standard.

“HAPPY”/“CALMING” ROOMS AND SNOEZELEN ROOMS

2.118 Some children’s units have enabled children to choose where they undergo an investigation that is unpleasant or painful. An example of this was seen in a children’s cancer unit where children required regular blood tests. Children could choose for this procedure to be carried out in the “happy room” or the “calming room”. The children said they found this space beneficial and staff said that it was frequently used. The room can also be used to accommodate a child who is distressed, disruptive or displaying complex behavioural problems. See [paragraphs 3.186–3.191](#).

2.119 The Snoezelen room can fulfil a similar function to the happy/calming room, offering “time out”. Children with severe learning disabilities can benefit particularly. Clinical interventions should not take place in this room – children should be able to feel absolutely safe here. See [paragraphs 3.192–3.193](#).

BEREAVEMENT FACILITIES¹¹

2.120 “A dying child is a child first and foremost and their needs as children should be accommodated as a priority. The environment therefore needs to be child friendly and as ‘home like’ as possible” (‘National Minimum Standards: Regulations for Independent Health Care’, DH, 2002, p 126).

2.121 Most terminally ill children die at home and are cared for by their families, supported by professionals such as their GP and specialist nurses. It is a rare event that a child whose death is anticipated dies in a general hospital, although some may choose to die in hospital. Most deaths that take place in a general hospital are unexpected, for example a baby who dies during delivery, in a maternity or obstetric department or neonatal unit, or a child who dies in A&E or in the operating theatre having presented with major trauma or an acute-onset illness.

2.122 The general bereavement facilities required in A&E are described in detail in HBN 22, ‘Accident and

emergency facilities for adults and children’; in intensive care in HBN 57, ‘Facilities for critical care’; in operating theatres in HBN 26, ‘Facilities for surgical procedures’; and will be addressed in the forthcoming guidance on maternity facilities. The principles outlined in ‘Friendly healthcare environments for children and young people’ (NHS Estates, 2003) should be adopted for all bereavement facilities.

2.123 Support facilities of a high standard are required for the child and their family. Dedicated bereavement facilities are usually located within a mortuary department, which serves the whole hospital (see HBN 20, ‘Facilities for mortuary and post-mortem services’, pp 16–17). In a children’s unit within an acute general hospital, it is unlikely that dedicated bereavement facilities will be required; however, there should always be access to a quiet, comfortable room.

2.124 A tertiary children’s hospital will provide a dedicated bereavement suite (see [paragraphs 3.232–3.238](#)).

DESIGNATED SMOKING AREAS

2.125 In recent years, many NHS trusts have implemented a total ban on smoking anywhere on the premises. There is evidence, however, that some trusts have revised this decision and re-introduced designated smoking areas. The reasons for this are two-fold, the first being that patients, relatives and staff who smoke continued to do so in areas that could present a danger through the increased risk of fire. The second and perhaps most significant reason is that as long as tobacco remains a legal substance, a complete ban in all areas may constitute a breach under the Human Rights Act 1988.

2.126 The smoking policy should therefore be decided (to include a total ban or to designate “smoking areas”), implemented and enforced by the trust board.

¹¹ See paragraph 3.28 of the Hospital Services Standard. This topic is covered in the full Children’s NSF.

3 The built environment – specific design requirements

Tree House Unit, Stockport NHS Trust



3.1 This chapter sets out the specific design requirements of the individual spaces in a children’s unit within an acute general hospital serving a population of 300,000.

MAIN ENTRANCE

3.2 The dedicated main entrance to the children’s unit is for the use of patients, carers and visitors who require access to this facility only. In a refurbishment, if only one main entrance to the hospital exists, the principles described in paragraphs 3.3–3.6 should still be adopted.

3.3 Dedicated parking spaces should be provided for both people with disabilities and parents with young children.

3.4 The entrance should have a suitable canopy that covers a walkway from the designated drop-off point. Barriers should be provided to protect children from nearby traffic.

3.5 The entrance should have a draught lobby with automatic sliding doors. The lobby should be large enough to allow the easy movement of patients with a variety of conditions, including those using wheelchairs and walking aids. The floor covering should be able to trap dirt carried by footwear and wheels, and be easily cleaned.

3.6 The entrance should be fun, welcoming and child-friendly. It should be bright, airy and spacious, with plenty of visual stimulation to distract children of different ages. Child-friendly landscaping, external water features and lighting should be integral to the design.

Dedicated entrance only

3.7 This entrance will be open to the public from early morning until late evening, seven days a week. It will be monitored by CCTV linked to the main hospital security. At night, the door to the main entrance will be locked. Access to the in-patient area for staff and relatives will be via the hospital street and controlled by close proximity cards.

3.8 See also ‘Welcoming entrances and reception areas’ (NHS Estates, 2003), ‘Improving the Patient Experience: Best practice guide’ (NHS Estates, forthcoming) and ‘Friendly healthcare environments for children and young people’ (NHS Estates, 2003) for further guidance.

MAIN RECEPTION

3.9 The reception area is the focal point – it should be located in an open space directly inside the entrance and be immediately visible. Staff should be able to see all patients and carers entering the unit and should have clear vision of the children’s waiting/play areas. CCTV should be installed in strategic places.



Children’s waiting area. Courtesy of NHS Photo Library



Loch Ness Monster, Derbyshire Children’s Hospital. Reproduced by kind permission of the Medical Illustrations Department, Southern Derbyshire Acute Hospitals NHS Trust



Boat reception desk, Children's A&E Department, Bradford Royal Infirmary

*House reception desk, Bristol Royal Hospital for Children
Photographer: Jerry Hardman-Jones*



Reception desk

3.10 The design of the reception desk should be of a high quality and allow access for people with disabilities. It should take account of the varied heights and sizes of children. The counter top should have two heights; one for wheelchair-users and children (71 cm), and one for older children and adults at standing height for occasional writing (1 m; computers should be located behind this part of the desk). See HBN 22, 'Accident and emergency facilities for adults and children', Appendix 2, Sheet 7 for a reception desk layout. The desk should be as child-friendly as possible, and include forms of artwork.

3.11 Space is required for computer facilities, a working supply of stationery and office accessories. Chairs with

castors should be used to facilitate quick movement in case of an emergency. The floor surface should be carpet in this case.

Waiting/play area

3.12 The waiting/play area should have direct access from the reception area and have easy access to patient areas. It should have a comfortable and relaxing environment with domestic-type finishes and furnishings (see BS 8409:2002).

3.13 There should be adequate space around the seating for parking pushchairs, for people with walking aids and for wheelchairs, without impeding circulation areas. Different types of table and chair are required suitable for children of different ages and heights and for

adults. Occupational therapists or ergonomists should be consulted on the selection of appropriate seating.

3.14 A drinking-water dispenser, preferably a water fountain, is essential. Vending machines that dispense cold drinks and snacks are desirable.

3.15 Consideration should also be given to the needs of pregnant and nursing mothers. Planning teams should demonstrate their commitment to the Baby Friendly Health Initiative by ensuring that there is a supportive environment for women who choose to breastfeed their babies in public areas (see <http://www.babyfriendly.org.uk>). The criteria for meeting the Baby Friendly Health Initiative (BFHI) are described in 'Friendly healthcare environments for children and young people' (NHS Estates, 2003).

3.16 Spaces for privacy and quiet are also desirable.

3.17 Easy access to telephones and buggy storage areas is required. Sanitary facilities, nappy changing and infant feeding rooms should be located adjacent to the waiting area.

Play area

3.18 A designated and secure play area for children should be provided. The layout of the waiting/play area should take account of the separate needs of younger and older children. Sub-division may be achieved by the skilful arrangement of seating, by screens and/or by indoor planting. Sound-reducing fabrics and finishes should be specified to reduce the impact of the noise emanating from children and their toys (see HTM 87, 'Textiles and furniture').

3.19 Toys, display panels, writing surfaces and books (with appropriate storage) should be provided for children of all ages. Toys that are the property of the healthcare sector must comply with BS 5665. A toy safety policy should be agreed locally. Planning teams may wish to consider the provision of low-level background music and/or a TV/video system. These can help patients and parents/carers to relax and can alleviate boredom. A supply of current reading material should be available in a well-designed holder.

3.20 Internal play spaces should have views through windows with low sills. Ideally, they should have access to courtyards or enclosed landscape areas, with opportunities for shelters within these spaces. The spaces should be designed to engage or stimulate the senses, especially sight and touch.

Telephones

3.21 Payphones for use by visitors should be located within the main waiting area. One should be wheelchair-

accessible and fitted with an inductive coupler to assist people using a hearing aid.

3.22 A telephone with a freephone taxi service should be provided and it must meet the criteria of the Disability Discrimination Act 1995 (see HFN 14, 'Disability Access'). See also 'Rights of Access: Goods, Facilities, Services and Premises' (Disability Rights Commission, 2002).

Baby-buggy and pushchair bay

3.23 A bay is required where parents/carers can safely and securely store baby-buggies and pushchairs during their period of stay in the children's unit. Appropriate locking devices and wall protection are necessary.

WCs

3.24 Two unisex wheelchair-accessible WCs should be installed close to the reception area. They should not be overlooked from the waiting area to provide maximum privacy.

3.25 The WCs are for the use of children as well as adults. Child-specific WC pans are not required. Hand-washing facilities should be provided in all WCs. Touch-free WCs and adult height hand-wash basins should be installed.

Nappy changing room

3.26 A room where a baby can have a nappy changed, in privacy, should be located off the waiting area, connected to the infant feeding room. It should be large enough to accommodate an older child with continence difficulties and their carer (for the preferred option see [Appendix 4, Sheet 4](#)). Seating and facilities for the disposal of soiled nappies and other waste are required. Non-touch hand-washing and WC facilities should be provided.

3.27 The room should be sound-proofed with acoustic ceilings and partitions to prevent the sound of crying children travelling into adjacent spaces. It should be mechanically ventilated. Natural light is not necessary, but a high level of artificial light should be provided.

Infant feeding room

3.28 A room where a baby can be fed should be easily accessible from the waiting areas. Facilities for the disposal of waste are required. Non-touch hand-washing facilities should also be provided. For the preferred option see [Appendix 4, Sheet 5](#).

3.29 This room should include comfortable seating with soft and washable furnishings. The fabric of the room should be sound-absorbent (see HTM 87). A dimmer switch should control the indirect wall/ceiling lights. Mobile artwork, suspended from the ceiling, is of great

benefit. Hi-fi equipment for playing music is also desirable. Where necessary, the room should be mechanically ventilated.

OUT-PATIENT FACILITIES

Sizing the unit

3.30 For an acute general hospital with a population of 300,000, there will be approximately 5400 paediatric out-patients per annum. Therefore, there will be 113 children per week based on 48 weeks, which is approximately 13 per session based on nine sessions per week. The numbers attending per session can fluctuate.

3.31 Allowing for undressing and dressing time, each consulting room will be able to accommodate two children per hour. Depending on the period of time for each session, this will determine the number of children that can be seen per room per session. For example, if the session is three hours, one consulting room will accommodate six children. Based on the approximate figure of 13 attendees per session for a three-hour session, two rooms will be required. However, to allow for fluctuations, three rooms would be the sensible option.

Shared facilities

3.32 The following facilities are shared between the out-patient suite, the CDC and the rehabilitation unit:

Main waiting room/play area

3.33 The main waiting area in the out-patient facilities should provide seating for a minimum of 30 people, with additional allowance for a play area. Two unisex wheelchair-accessible WCs are required. A nappy changing room, infant feeding room and access to a

public telephone should be provided. A drinking water dispenser is essential. See [paragraphs 3.2–3.29](#).

Disposal hold

3.34 A disposal hold is required where bags of soiled linen for reprocessing, sterile services department (SSD) returns, bags of refuse for disposal and other items, as appropriate, can be held prior to removal by porters. Bagged items should be identified appropriately using a colour-coded system, in accordance with national guidance and local policy.

3.35 The floor space should be clearly sub-divided so that different types of commodity are separate from each other. This will assist rapid collection and should also minimise the risk of items for reprocessing being accidentally taken for disposal by incineration.

3.36 The hold area should be located near the exit, from which collections will be made. It could have its own external door to enable collections to be made without the need to enter the unit.

3.37 Planning teams should base the size of the hold on the maximum anticipated load at any one time. This will be influenced mainly by the workload of the unit and the type and size of containers, and if necessary, the frequency of collections should be increased.

Housekeeping room

3.38 A mechanically ventilated, lockable storeroom is required for the storage of cleaning supplies and domestic equipment (see 'The Control of Substances Hazardous to Health Regulations', 2002, relating to safe storage and use of chemicals and cleaning materials).

Waiting area floor and screen, Royal Preston Hospital





Out-patient department, Bristol Royal Hospital for Children – Photographer: Jerry Hardman-Jones

3.39 Facilities should be provided in this space for filling and emptying cleaning equipment via a bucket sink with hot and cold water. A sluice hopper for the disposal of soiled mop water, a sink for washing soiled mop buckets and a drainer should be provided, as well as a separate hand-wash basin. Provision of a low-level sink will facilitate the emptying and filling of buckets of water. Access to sinks should be unrestricted.

3.40 Some cleaning equipment is bulky, a factor which should be taken into account when designing and locating the housekeeper's room.

Switchcupboard

3.41 A switchcupboard with lockable doors, housing the main isolators and distribution fuse switchgear, must be:

- accessible directly from a circulation area (access space may be part of the circulation area);
- sited away from water services;
- lockable.

3.42 The switchcupboard, where possible, should be sited within the suite. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised, during maintenance, from passing traffic or the opening of adjacent doors.

Pharmacy

3.43 Quick and easy access to a pharmacy should be available. In a larger children's unit, a dedicated pharmacy located in the out-patient facility, albeit limited, should be provided in normal working hours. The pharmacy can also be utilised by the patients in the in-patient facility, for example following day surgery prior to their discharge home.

Out-patient suite

3.44 The out-patient suite should have the following dedicated accommodation.

Sub-wait with play area

3.45 This should be able to accommodate a minimum of ten people, with additional space allowance for a play area. It should have access to sanitary facilities and nappy changing and infant feeding rooms. The general ambience of the sub-wait with its associated decor, furnishing and fittings should follow the same principles as those described in the general waiting area (see [paragraphs 3.2–3.29](#)).

Consulting rooms

3.46 Flexible, multi-functional rooms are required that will enable the majority of children and their carers to remain in the same place for every aspect of their care. This will reduce the number of moves that children and their carers have to make on their journey through the

out-patient department. These rooms provide facilities for all initial consultations, most clinical examinations, and treatment.

3.47 They should be positioned adjacent to the clean and dirty utility rooms. Each one will be equipped with weighing and measuring equipment. An additional treatment room has been provided for specialist clinical interventions (see [paragraphs 3.52–3.54](#)).

3.48 For privacy, and to help minimise the risk of cross-infection, all rooms should have full-height walls and doors. The use of curtained cubicles is unacceptable. Access should be via a door and a half (half door can be opened to allow space for trolleys and large equipment), which should be kept locked when the patient is being examined or treated. Doors must have a “free-to-escape” emergency release, for activation in an emergency and on initiation of the fire alarm system. Door swings should not impede movement or activities within the rooms, as 360° access to the examination couch/trolley is essential.

3.49 There should be sufficient space in each room to enable a minimum of two clinicians to move freely around the examination couch/trolley and to examine and treat the patient from either side. There should be sufficient space for a baby or young child to crawl around on the floor. There should also be sufficient space to accommodate a minimum of two parent/carers and equipment such as a buggy, pushchair or wheelchair.

3.50 Natural light is essential. Child-friendly decor should be included, provided the guidelines for minimising the risk of cross-infection are met (see HFN 30, ‘Infection control in the built environment’).

3.51 The rooms should be equipped with:

- a clinical hand-wash basin with non-touch taps;
- an alcohol hand-rub dispenser;
- an examination couch/trolley;
- an examination lamp;
- a wall-mounted auroscope and ophthalmoscope;
- a mirror;
- an X-ray viewer (see [paragraph 2.63](#));
- a computer workstation for recording clinical information and viewing digital images, with an adjustable-height office chair;
- a connection for IT services;
- two small upright chairs;
- a hands-free telephone;
- personal alarm transmitters for staff security;
- a staff call system for use by patients;
- a clinical emergency call for use by staff;

Hospital street and treatment room, Epsom General Hospital



- bin holders for waste disposal (clinical and general waste);
- wall or trolley-mounted sharps bins.

Treatment room

3.52 The treatment room will require the same equipment as the consulting room. Some procedures will be undertaken in this room that cannot take place in the consulting room, for example cryosurgery and laser treatment.

3.53 Cryosurgical treatment requires the use of liquid nitrogen, liquid carbon dioxide, high-pressure carbon dioxide or high-pressure nitrous oxide. Mechanical ventilation must be provided and care must be taken to avoid discharging exhaust fumes into neighbouring supply ventilation or through windows to adjacent naturally ventilated spaces.

3.54 Laser equipment is bulky and requires additional space for storage. Electrical warning lights and doors that prohibit entry when the laser is in use are essential.

Clean utility

3.55 A clean utility is required where drugs, medicines and lotions can be stored and prepared, a working

supply of clean and sterile supplies can be held, and dressing trolleys can be prepared for clinics. A controlled drugs cupboard may be located here. Non-touch clinical hand-washing facilities with an alcohol hand-rub dispenser and a refrigerator should be provided. A clean air supply should be provided.

Dirty utility

3.56 A dirty utility should include facilities for cleaning dressing trolleys and other items of equipment, for testing specimens of urine and faeces and recording results, for the disposal of liquid waste, and for temporarily holding items requiring reprocessing or disposal. A combined disposal unit, with worktop, and non-touch clinical hand-washing facilities with an alcohol hand-rub dispenser, should be provided. A stainless steel sink for washing dirty equipment, and mechanical extract ventilation, are required.

3.57 To reduce the risk of HCAI, clean disposable or non-disposable items such as bedpans, urine bottles and vomit bowls should not be stored here. These should be stored in the clean utility or bulk stores.

3.58 If possible, the room should also be adjacent to a WC for the collection of specimens.

Out-patient department treatment room, Queen's Park Hospital, Blackburn



Office

3.59 An office is required where administrative work can be carried out. This should include a workstation with a desk, seating for up to four people, storage for books and files, and a computer terminal. A repeater warning light for the controlled drugs cupboard may be located here.

Interview room

3.60 An interview room with en-suite facilities is required for discussion sessions for parents/carers. This room can also be used for staff training and seminars. Additional education and training facilities are located in the staff support facilities.

Stores

3.61 A room is required for the storage of bulk supplies. This space is intended as a holding store for medical and surgical supplies. The amount of storage required is determined by local supplies policy and use of the “just-in-time” system. Supplies can be stored using the modular storage system – see HTM 71, ‘Materials management modular storage’ for details.

3.62 An increasing number of UK hospitals have installed the “just-in-time” storage system, which involves a large centralised store on each site where all non-specialised clinical equipment is kept for regular distribution on a “top-up” basis to the different departments when it is required. Agreement should be reached about the minimum level of equipment that should be retained in each department at all times. All just-in-time equipment is bar-coded. Before each piece of equipment is used, a computer reads the bar-code, informing central stores that the equipment should be replaced. Clinicians who are using this system in acute hospitals are impressed with the results.

Child development centre

3.63 The CDC should have following dedicated accommodation.

Sub-wait with play area

3.64 The size of the sub-wait should be decided by the planning team, based on local attendance figures. There should be sufficient space for a minimum of two adults per child, with additional space allowance for a play area. It should have access to sanitary facilities, including two unisex wheelchair-accessible WCs, and to nappy changing and infant feeding rooms (see paragraphs 3.2–3.29).

Assessment rooms

3.65 The two assessment rooms in the CDC should provide accommodation that can be used for:

- consulting, examination, interview and treatment;
- assessment, observation and remedial therapy;
- play.

3.66 Fittings and furniture should include shelves and cupboards for the storage of equipment and toys. A pin- and chalkboard should be wall-mounted at a low level. A variety of tables, desks and nursery furniture, semi-easy chairs, and a mobile mirror with unbreakable/safety glass are required.

3.67 A clinical atmosphere should be avoided. Child-friendly decor is essential. Facilities for play (including sand and water play) and remedial therapy are required. Non-touch hand-wash basins should be installed. Full-length lockers for the secure storage of dry outer garments and other personal belongings of patients and carers should be located in the CDC.

3.68 Essential life-support equipment (oxygen and vacuum) is required, and an emergency alarm should be installed so that the staff can summon immediate help.

Observation room

3.69 An observation room is required, which should be located between the two assessment rooms. One-way viewing panels and audio and/or video transmission and recording equipment should be provided between the viewing room and the assessment rooms, so that the activities of a child can be observed from, and heard and recorded in, the observation room. Sufficient power points are required for the audio and video equipment.

3.70 The observation room should contain shelves and a table to accommodate the transmission and recording equipment. A two-way speech system will be required. Where appropriate, the room should be mechanically ventilated.

Dining room

3.71 Patients and carers who attend for whole-day sessions will need access to food and beverages. A small dining room with dining tables and stacking chairs is required. Storage and preparation units are essential for cutlery, crockery and dry foods. Beverages are prepared in this room. A sink and separate hand-washing facilities are required.

Dirty utility

3.72 Provision should be as for the out-patient suite (see paragraphs 3.56–3.58), with the exception of equipment for testing urine and faeces. Commodes and sanitary chairs will be stored here.

Office

3.73 Provision should be as for the out-patient suite (see [paragraph 3.59](#)), with the exception of the warning light for a drugs cupboard.

Interview room

3.74 Provision should be as for the out-patient suite (see [paragraph 3.60](#)).

Stores

3.75 Provision should be as for the out-patient suite (see [paragraphs 3.61–3.62](#)).

Rehabilitation unit

3.76 The rehabilitation unit should have the following dedicated accommodation.

Sub-wait with play area

3.77 The size of the sub-wait should be decided by the planning team, based on local attendance figures. There should be sufficient space for a minimum of two adults per child, with additional space allowance for a play area. It should have access to sanitary facilities, including two unisex wheelchair-accessible WCs, and nappy changing and infant feeding rooms (see [paragraphs 3.2–3.29](#)).

Rehabilitation rooms

3.78 Two rooms are required for assessment, observation and therapy by members of the multidisciplinary team. One room should be used for out-patients and the other for in-patients. As a project option, one of the rooms can be located in the CDC and the other in the in-patient unit. Changing rooms are required wherever the rehabilitation rooms are located.

3.79 The rooms should allow for the functioning of a wide range of equipment, some fixed and some mobile. Planning teams should consult remedial therapy staff locally with regard to how the room might be used and for precise furniture and equipment requirements; these factors will be influenced by the age range of the children and/or young people using the room. Essential life-support equipment (oxygen and vacuum) is required and an emergency alarm should be installed so that the staff can summon immediate help.

3.80 Protecting staff from injury when lifting, turning and carrying children should be a prime consideration. The Manual Handling Regulations must be implemented. Suitable lifting equipment should be installed, for example overhead hoists. Advice should be sought from the therapy professions when selecting the lifting equipment required.

3.81 The floor covering should be hard-wearing and non-slip. Hand-washing facilities with non-touch taps are required.

3.82 The rooms should be large enough to accommodate five to ten patients, staff and carers.

Changing rooms

3.83 Two changing rooms should be provided that can accommodate an older dependent child and their carer in complete privacy and comfort.

3.84 It is essential that a hoist is provided in each of the changing rooms to aid manual lifting.

Dirty utility

3.85 Provision should be as for the out-patient suite (see [paragraphs 3.56–3.58](#)), with the exception of equipment for testing urine and faeces. Commodes and sanitary chairs will be stored here.

Office

3.86 Provision should be as for the out-patient suite (see [paragraph 3.59](#)), with the exception of the warning light for a drugs cupboard.

Interview rooms

3.87 Interview rooms with en-suite facilities are required similar to those in the out-patient suite and the CDC (see [paragraph 3.60](#)).

3.88 A discrete and sound-proofed room in which speech therapists can work with children is essential. One interview room can also be used by the speech therapist (see HTM 2045, 'Acoustics: Design considerations', for intrusive noise criteria).

Stores

3.89 Provision should be as for the out-patient suite (see [paragraphs 3.61–3.62](#)).

Hydrotherapy pool with changing facilities

3.90 Access to a hydrotherapy pool is essential. However, it is unlikely to be located in the children's unit within an acute general hospital. Such pools will continue to be used by both children and adults. In a tertiary hospital, a dedicated children's hydrotherapy pool may be provided.

3.91 The staff should collaborate on an ongoing basis with the engineering department and a medical microbiologist to ensure that the correct conditions are maintained, as a variety of infections have been linked to hydrotherapy pools (see 'Hygiene for hydrotherapy pools', Public Health Laboratory Service, 1999).



Hydrotherapy pool, Bristol Royal Hospital for Children – Photographer: Jerry Hardman-Jones

3.92 See HBN 8, 'Facilities for rehabilitation services' for further details of the general design of a hydrotherapy pool.

IN-PATIENT FACILITIES

Shared facilities

3.93 The following facilities are shared by the day care unit, the in-patient unit and the paediatric assessment unit:

1. a main waiting room/play area with sanitary facilities, including a wheelchair-accessible WC, nappy changing facilities and an infant feeding room (see paragraphs 3.2–3.29);
2. a near-patient testing laboratory (see paragraphs 3.163–3.164);
3. a disposal hold (see paragraphs 3.34–3.37);
4. a housekeeping room (see paragraphs 3.38–3.40);
5. a switchcupboard (see paragraphs 3.41–3.42).

Day care unit

Sizing the unit

3.94 The number of bed/cot/trolley spaces required in a day care unit should be calculated on the following basis:

- the number of consultant episodes per year (a);
- the average length of a consultant episode – this will usually be half or full days (b);
- the number of days per year each bed/cot/trolley space is available (c).

3.95 The formula for calculating the number of bed/cot/trolley spaces is $(a \times b)/c$. Planned occupancy in a day care unit that is supported by an in-patient unit should be around 100%, as each patient is an elective admission for a predetermined intervention by a specified clinician. For a day care unit with 8000 finished consultant episodes (FCEs) per year, 16 bed/cot/trolley spaces are required.

3.96 In a 16-bed ward, provision of 100% single rooms with en-suite facilities would offer maximum flexibility.

Furthermore, in an emergency situation, for example an epidemic, these rooms can be used as additional in-patient accommodation. Day care patients should not normally be mixed with acutely ill in-patients, except in an emergency.

3.97 For best practice, a minimum of 50% single rooms should be provided, with 20% (or greater than existing) being the absolute minimum. The schedules of accommodation in this guidance are based on eight single rooms with en-suite facilities (see paragraph 3.142), with the remaining eight in two four-bed wards with associated en-suite facilities or access to an assisted shower (see paragraph 3.121). Planners will need to consider carefully the needs of children of different ages and both sexes. Allocating one four-bed ward for younger children and one for young people would mean that it would not be possible to separate males from females in the older age group. It also limits the opportunity to admit a child of any age or either sex to an empty bed. Allocation of multi-bed spaces is ultimately a local decision. See also note at paragraph 2.70.

3.98 If the children's unit is a recognised oncology centre where children are admitted for chemotherapy, additional single bedrooms will be required. The number of rooms should be calculated locally and will depend on the proximity of the regional cancer centre.

3.99 The day care unit should have the following dedicated accommodation.

Reception with sub-wait and play area

3.100 The size of the sub-wait should be decided by the planning team, based on local attendance figures. There should be sufficient space for a minimum of two adults per child, with additional space allowance for a play area. IT facilities and games should be provided. It should have access to sanitary facilities, including two unisex wheelchair-accessible WCs, and to nappy changing and infant feeding rooms (see paragraphs 3.2–3.29).

Office

3.101 Provision should be as for the out-patient suite (see paragraph 3.59).

Interview room with en-suite facilities

3.102 Provision should be as for the out-patient suite (see paragraph 3.60).

Communications base/clean utility

3.103 A communications base with an associated small clean utility should be located at a central point within the unit. The communications base requires a desk with computer facilities and storage for files, stationery and

records. An X-ray viewer is also required. A hands-free telephone should be located in a private area so that conversations cannot be overheard.

3.104 Activities taking place at the communications base include the observation of patients, reporting, report-writing, telephoning, viewing images, examining data on a central monitor and the use of computers. The base should be able to accommodate telecommunications facilities and a number of networked computers with IT services.

3.105 The controls for lighting and heating, and medical gas isolation valves, are located on the back wall of the communications base. Task lighting is required at night to prevent disturbing patients. Control of the entry system is transferred from the reception area to the communications base at night.

3.106 The clean utility should include storage facilities for small quantities of medical equipment and supplies. The controlled drugs cupboard is located here. A bay for the mobile resuscitation trolley should be located close to the communications base. A linen store should also be located close by.

Pantry/beverage making area

3.107 An area is required for the preparation of beverages and light refreshments for day patients. The area can be either integral to the communications base or located close by. A kitchen sink, worktop surfaces, storage units, a refrigerator, and a separate hand-wash basin with non-touch taps will be required.

Bed spaces

3.108 All bedrooms should be accessed via a free-to-escape, lockable door and a half. They should be enclosed by full-height, soundproof walls. They should have natural light with external views to a courtyard or landscaped area. Windows should have a low-level sill (a maximum of 600 mm) to enable small children to see outside from their bed or cot. Blinds to internal glazed screens and windows are required to permit privacy when required and give protection from glare and solar gain, controlled from within the room. Internal low-level windows are required so that the children can be observed by members of staff (see Approved Document N, 'Glazing – in relation to impact, opening and cleaning', The Building Regulations, DETR, 1999).

3.109 All bed spaces (in single and multi-bed rooms) should be designed to accommodate a full-size adult bed. There should be sufficient space for at least two members of staff plus a parent or carer around the immediate bed space. A bedside locker and easy chair are also required. A bed-head services panel should be provided incorporating:

- electrical socket-outlets;



Left: view to external play area from single bedroom; right: internal window in single bedroom, both Walton Centre for Neurology and Neurosurgery

- oxygen, medical air and vacuum outlets;
- a luminaire control switch;
- a nurse call button/indicator lamp;
- a staff/staff emergency pull switch.

3.110 A clinical/examination lamp is also required. The colour of the walls at the head-end should not distort the colour rendering of examination light sources. It should be possible to clearly define and easily identify changes to children's skin tone and colour. Children generally have more reflective skin than adults.

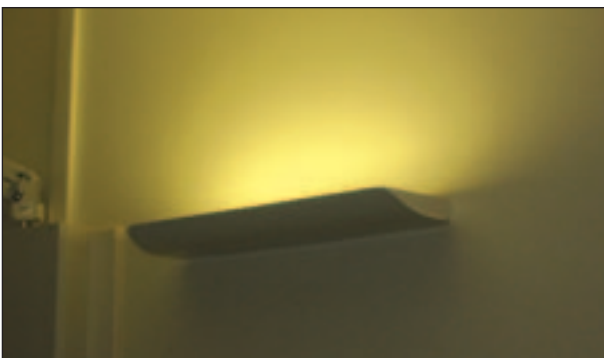
3.111 All single and multi-bed rooms require a clinical non-touch hand-washing facility with an alcohol hand-rub dispenser.

3.112 The overall ambience of the bedrooms should be one of comfort. The ambient, artificial lighting should be

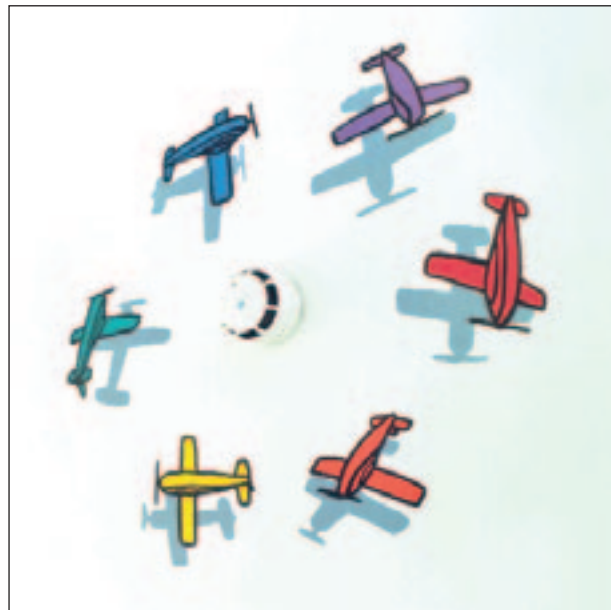
indirect, should provide wall/ceiling washing and should be dimmable via bedside controls.

3.113 The opportunity to display artwork on ceilings, walls and floors is essential. Ceiling-mounted artwork is particularly useful, especially when children remain in bed for long periods of time. It is also possible to read books, watch computer art forms and films using the ceiling as a screen. There should be storage space for toys and books.

3.114 Each bed area should have sufficient space for displaying personal effects such as family photographs,



Uplighter in single bedroom, Walton Centre for Neurology and Neurosurgery



Ceiling artwork, Bristol Royal Hospital for Children
Photographer: Jerry Hardman-Jones



Ceiling tiles on wards, Royal Preston Hospital



favourite toys and get well cards (the Plaintree philosophy).

3.115 Patient entertainment should be considered, but as children are usually discharged from day care as soon as possible, this facility may not be required.

3.116 The minimum size of a single bedroom is 3.4 m x 4.2 m (see HBN 4, 'In-patient accommodation').

3.117 The minimum size of each bed space in a multi-bed room is 3.4 m x 3.5 m (see HBN 4).

3.118 Bed spaces in multi-bed rooms should be separated by a curtain system that meets the following criteria:

- the radiation protection requirements should be met. A lead-lined system is therefore suitable;
- when the curtains are pulled around the bed space, there should be 100% visual privacy;
- it should be possible to pull the curtains back completely against the wall, thus allowing an uninterrupted view of the patient;
- the density of the curtains should reduce the level of general noise transmitted and also improve the level of auditory privacy in the bed space. Again, a lead-lined system would help to achieve this;
- the curtains must also be fire-resistant;
- the curtains should be easily movable and easy to clean. UPVC-coated curtains are suitable as they can be wiped or washed clean in situ. Fabric curtains are not suitable as they increase the risk of HCAI.

3.119 The space for the clinical non-touch hand-washing facilities should not impinge on any of the bed spaces in the multi-bed rooms.

3.120 Play areas are not required in these multi-bed rooms.

Assisted shower room

3.121 The assisted shower room should be large enough to accommodate a shower, non-touch hand-washing facility and clinical waste bin.

3.122 The floor surface should be slip-resistant. The gradient of the floor of the wet area should ensure effective drainage to the waste outlet, thereby preventing ponding.

3.123 An emergency call system should be provided that is easily identifiable, accessible from the

wet area, and that descends far enough to be within the reach of a patient who has fallen or collapsed.

3.124 Extract ventilation should preclude excessive heat and humidity.

Dirty utility

3.125 Provision should be as for the out-patient suite (see paragraphs 3.56–3.58). Commodes and sanitary chairs will be stored here.

Stores

3.126 Provision should be as for the out-patient suite (see paragraphs 3.61–3.62).

Treatment room

3.127 This treatment room provides facilities for most clinical examinations, assessment and treatment. It should be equipped to stabilise a Level 3 (critically ill; see Appendix 3 for definitions of the levels of care) baby, child or young person in an emergency situation prior to retrieval. A ventilator must be available.

3.128 The room is identical to that in the out-patient suite except that a medical supply unit for multi-parameter monitoring and medical gases is required. The hands-free telephone can be either wall-mounted or attached to the medical supply unit. It is envisaged that in the future, computed radiography imaging will be provided via the medical supply unit in this treatment room.

3.129 In this treatment room, a number of planned clinical interventions not requiring a general anaesthetic could take place. A child undergoing an elective procedure that requires a general anaesthetic should be transferred from the day care unit to the operating theatre department.

3.130 The treatment room should be located next to the clean utility, where preparation for the procedures will take place.

3.131 A surgical hand-wash basin with an alcohol hand-rub dispenser must be installed.

3.132 Cryosurgical and laser treatment can also take place in this room (see [paragraphs 3.52–3.54](#)).

3.133 Natural light is not essential. Mechanical ventilation is required.

Staff WC

3.134 WCs are required for both male and female staff. The number required must comply with health and safety legislation. For guidance see the Workplace (Health, Safety and Welfare) Regulations 1992. Each WC will require a non-touch hand-wash basin and pan. Extract ventilation should be provided.

In-patient unit

3.135 Planning teams should ensure that facilities for children are: pleasant, calm and bright; safe and secure; as comfortable as possible; welcoming to patients and other family members; as free as possible from noise, especially at night; and free from unpleasant odours.

Sizing the unit

3.136 The number of bed areas and their configuration will depend on the size of the population served and local knowledge of the health needs of children. One ward may be required for surgery with another for paediatric medicine, or alternatively the bed areas may be divided on an age-related basis. Patients should be clustered by age where feasible so that they can share common activity spaces furnished and equipped for their needs.

Bed configurations

3.137 In a 20-bed ward, provision of 100% single rooms with en-suite facilities would offer maximum flexibility. For best practice, a minimum of 50% single rooms should be provided, with 20% (or greater than existing) being the absolute minimum. The schedules of accommodation in this document are based on 12 single rooms with en-suite facilities and integral parental accommodation. The reasons for the increased number of single rooms are as follows:

- a significant number of admissions to an in-patient unit are babies and very young children;
- paediatric medical emergency admissions are frequently as a result of infection and require isolation;
- children who are in-patients tend to be more acutely ill than in the past;

- each single room is equipped to enable Level 2 critical care interventions and stabilisation to Level 3 until transfer by a retrieval team to a tertiary centre is possible;
- single rooms enable maximum flexibility in admission policy, as children of any age, either sex, and of any culture can be accommodated without delay;
- single rooms enable children and their parents to enjoy complete visual and auditory privacy from other families;
- single rooms limit the potential for unauthorised approaches to a child.

3.138 If there is only one 20-bed ward with 12 single rooms, two four-bed wards will be needed. Planners will need to consider carefully the needs of children of different ages and both sexes. Allocating one four-bed ward for younger children and one for young people would mean that it would not be possible to separate males from females in the older age group. It also limits the opportunity to admit a child of any age or either sex to an empty bed. Allocation of multi-bed spaces is ultimately a local decision. See also note at [paragraph 2.70](#).

3.139 The in-patient unit should have the following dedicated accommodation.

Sub-wait and play area

3.140 This should have access to sanitary facilities, including two unisex wheelchair-accessible WCs, and to nappy changing and infant feeding rooms (see [paragraphs 3.2–3.29](#)).

Bed spaces

3.141 See [paragraphs 3.108–3.115](#) under 'Day care unit' for a description of typical bed spaces. In addition, parental accommodation should be provided in the in-patient unit.

3.142 Children and their parents should also have access to en-suite facilities. These should be suitable for use by a seated patient and should include a shower, non-touch flush valve WC and hand-wash basin with non-touch taps, shaver point and an illuminated mirror. They must be accessible via an emergency release door. The WC pan should be normal (adult) height and able to accommodate a patient on a sanitary chair (see [Appendix 4, sheets 1 and 2](#)).

3.143 Isolation rooms will be needed for infectious children or children at risk of infection from others – see [paragraphs 5.60–5.61](#).

3.144 Also, the bed-head services panel in the bed spaces should include, in addition to those items listed in [paragraph 3.109](#), the following equipment:



Single bedroom, Walton Centre for Neurology and Neurosurgery

- a socket for a patient handset;
- a patient handset storage bracket;
- TV/radio/telephone;
- ideally, an Internet connection;
- additional power sockets for children's entertainment systems/video games.

3.145 Additional items of mobile equipment that may be required in each bed space on an occasional basis include ventilators; a hoist; monitoring equipment, an intravenous pump and naso-gastric food pump administration; and a mobile baby bath.

3.146 In addition to the patient's own bed, each single bedroom should be large enough to accommodate a wall- or sofa-bed for their carer. The minimum space requirement for a single bedroom is 3.7 m x 4.1 m (excluding the en-suite facility; see [Appendix 4 sheets 1 and 2](#)).

3.147 Each bed space in multi-bed rooms should include a fold-away bed for a parent or carer. During the daytime, the space allocated to the fold-away bed should be used as a personal play area for the child. Each bed space should not be less than 3.6 m x 3.8 m, with no intrusions into this space (see [Appendix 4 Sheet 3](#)).

3.148 Multi-bed rooms should also incorporate a dedicated play area. The area should be large enough to accommodate a child's play table and seating, storage cupboards and shelving. This area can either be located as in [Appendix 4 Sheet 3](#), or can be provided in a bay window.

Assisted bathroom

3.149 An assisted bath with an overhead hoist should be provided. There should be space for two adults, since a nurse may be teaching a carer. There should be adequate space for a child to undress, dry and dress, and for storage of bath preparations, towels, clothes and bath toys.

3.150 A peninsular bath is required, facilitating easy access to both sides and to one end.

3.151 For young children, bench space should be provided where they can lie or sit to be dried and dressed.

3.152 The cord of the patient nurse call system should be easily identifiable and accessible from the bath, and should descend far enough to be within the reach of a patient. The floor surface should be slip-resistant.

3.153 Extract ventilation should preclude excessive heat and humidity.

Assisted WC

3.154 A centrally located, assisted WC should be located within easy reach of the bed spaces, the play and dining room(s), and the recreation room, day room and dining room.

3.155 The WC should be wheelchair-accessible and include grab- and hand-rails. It should be designed to enable staff to access the patient from either or both sides of the WC.

3.156 The hand-wash basin should have non-touch taps and the WC pan should have a non-touch flush valve.

3.157 A member of staff should be able to leave the WC without exposing the patient to view.

Treatment room

3.158 The same procedures can take place in the in-patient unit as in the day care unit and therefore an identical room is required ([paragraphs 3.127–3.133](#)). The in-patient treatment room can be used in the short term as an additional "critical care" bed for a baby, child or young person awaiting transfer to a tertiary PICU. This treatment room would also require an anaesthetic machine.

Treatment room 2 (optional)

3.159 A second treatment room identically equipped to the one described above could be sited within the main operating theatre department. In this treatment room, children could be given a general anaesthetic for minor interventions not requiring life-support techniques (for example suturing, incision of abscess, or removal of foreign body). The paediatric surgeons support this concept because, if a procedure turned out to be more complex than envisaged, the child could be transferred immediately into a main operating theatre. Staff would need to change into theatre gear to access the support facilities shared with the main operating department.

Clean utility

3.160 Provision should be as for the out-patient suite (see [paragraph 3.55](#)). The controlled drugs cupboard is located here.

Dirty utility

3.161 The dirty utility should be the same as in the out-patient suite and the day care unit (see [paragraphs 3.56–3.58](#)). Commodes and sanitary chairs will be stored here.

3.162 In the in-patient unit, it will serve more beds for a longer period of time and, therefore, is likely to require more storage space.

Near-patient testing laboratory

3.163 A near-patient testing laboratory should be installed in the in-patient facilities for blood gas, electrolyte and glucose analysis and other tests. This will significantly reduce the length of time patients have to wait for results. This facility should also be made available to the out-patient department.

3.164 The main requirements are for a sink, laboratory benching and adequate bench space for equipment, electrical socket-outlet provision, ready use storage for a blood gas machine, a specimen fridge, and sufficient space for staff to perform tests and use computer equipment. Separate clinical hand-washing facilities with non-touch taps and an alcohol hand-rub dispenser are also required.

Communications base

3.165 A communications base should be located at a central point within the unit, as in the day care unit (see [paragraphs 3.103–3.105](#)). The base should have direct access to both the clean and dirty utility rooms.

Nurse base, Bristol Royal Hospital for Children – Photographer: Jerry Hardman-Jones



Office

3.166 Provision should be as for the out-patient suite and the day care unit (see [paragraph 3.59](#)).

Staff WC

3.167 See [paragraph 3.134](#).

Dining facilities

3.168 Dining rooms should be divided into small units to provide more intimacy and to respect the needs of different age groups. This will also help to avoid acoustic problems inherent in a large space. It is also desirable to adopt varied design themes relative to changing multicultural menus. All dining spaces should have natural light and, where possible, views of landscaped areas. They should feel light and airy.

3.169 Ideally, these spaces should be punctuated with indoor planting, identifying them as an extension of the external spaces. Bright decor is recommended. Acoustic ceilings and partitions, together with cushioned flooring, will help to reduce noise levels.

3.170 See 'Better Hospital Food Programme: Catering services for children and young adults' (NHS Estates, 2003) and http://www.patientexperience.nhsestates.gov.uk/bhf/bhf_content/home/home.asp.

Playroom

3.171 There should be easy access from bedrooms to the playroom for patients who may be walking, in a wheelchair, or bed-bound, and for patients with mobility aids and intravenous stands.



Playroom, Walton Centre for Neurology and Neurosurgery

3.172 This room should be large enough to accommodate a variety of activities including group work, individual play and family participation play. There should be plenty of space for children to move around and interact with each other and for young children to ride on toys.

3.173 The playroom should be designed in such a way as to engage and stimulate a child's senses. Fittings, furniture and equipment in the playroom should include:

- a small sink at child height;
- a fitted mirror for use in "dressing up" in imaginative play (see [Appendix 4 Sheet 8](#));
- part of one wall covered with a chalk-board for use by younger children (see [Appendix 4 Sheet 9](#));
- open bookshelves and shelves for toys and games at heights appropriate for children (see [Appendix 4 Sheet 10](#));
- storage for toys and other bulky items and for materials such as paper, paint and clay;
- a lockable cupboard for the storage of play items requiring a degree of security;
- tables and chairs suitable for the range of ages likely to use the accommodation;
- a trolley with raised edges to move play equipment to children who are confined to their beds.



3.174 Portable room dividers may be required in order to organise some activities within the playroom. They should be sound-insulated to ensure little noise cross-over from adjacent play activities. Portable room dividers are now available that have sound insulation properties.

3.175 The playroom should have natural light and allow views through windows with low-level sills (see Approved Document N, 'Glazing – safety in relation to impact, opening and cleaning', The Building Regulations, DETR, 1999).

3.176 Medical gas outlets and an emergency call system are required in case of emergency. Medical gas outlets should be located in a cupboard with storage for masks and a flowmeter for safety and security.

Outdoor play areas

3.177 There should be direct and controlled access from within the children's unit to a safe outside play area with a garden. The design of doors leading to the outside play area should allow easy access for patients in beds and wheelchairs. Supervision and security are particularly important to eliminate the risk of interference from outside and children wandering away.



External play area, Walton Centre for Neurology and Neurosurgery

3.178 Surfaces next to slides, climbing equipment, swings or other activity equipment must conform to safety standards and be constructed of well-drained impact cushioning (see BS EN 1176-3 and 1176-4:1998 and BS EN 1177:1998).

3.179 A suitable covered area should be provided to screen bed-bound patients from the sun.

Recreation room

3.180 There should be easy access from the bedrooms for patients who may be walking, in a wheelchair, or bed-bound, and for patients with mobility aids and intravenous stands. The room should be large enough to accommodate a variety of activities. Fittings and furniture should complement the activities taking place. A lockable cupboard should be provided for the secure storage of valuable items. Tables and easy chairs are also necessary.

3.181 Beverages and light refreshments are prepared in the recreation room, therefore worktop surfaces, a kitchen sink, storage units, a refrigerator and a separate hand-wash basin with non-touch taps are required.

3.182 Medical gas outlets and an emergency call system are essential in case of emergency. Medical gas outlets should be located in a cupboard with storage for masks and a flowmeter for safety and security.

Outdoor play area, Bristol Royal Hospital for Children



Quiet/study room

3.183 The quiet/study room requires tables and easy chairs for the patients to sit in comfort. Computer facilities with access to IT services should be available. The decor should provide a calm ambience. Flexible task lighting for study rooms should be provided over and above the ambient lighting. All the furniture and fittings should be ergonomically comfortable and soft to the touch. The space should be sound-insulated to prevent the ingress of noise from adjacent areas (see HTM 2045, ‘Acoustics: Design considerations’ for intrusive noise criteria).

“Pamper room”

3.184 Hairdressing facilities are required. The “pamper room” can be an energising space where the senses can be stimulated. Aromatherapy scents can be used to enhance the experience. These can easily be introduced into the room via commercially available products.

3.185 This room should be sound-insulated to prevent the ingress of noise from adjacent areas (see HTM 2045, ‘Acoustics: Design considerations’ for intrusive noise criteria).

Happy/calming room

3.186 One room can fulfil both functions. This can be achieved by a series of lighting combinations, visual displays and music to create either a happy or calm environment, depending on the child’s choice at the time.

3.187 The overall ambience of the happy room should be uplifting and invigorating and can be achieved by reflecting bright and uplifting colours such as yellows and oranges. The artificial lighting should be brighter than the general lighting levels of the surrounding spaces. The projected artworks should have uplifting themes that can be modified to meet the needs of the respective age groups and cultures.

3.188 The overall ambience of the calming room should be one of serenity and tranquillity. Cool, low saturation colours should be reflected, such as shades of blue and green. Shades of pink have also been proven to calm high emotional states.

3.189 Artificial light should be specified within the blue or full spectrum range. The light should be indirect, with wall and/or ceiling washing.

3.190 The happy and calming rooms do not need to be large spaces but should be sufficient in size to accommodate three adults and the patient. Natural light is not essential, but mechanical ventilation should be provided. This room will require soft furnishings. Sufficient socket-outlets will be required for the

specialist electrical equipment. All the furniture and fittings should be ergonomically comfortable and soft to the touch. A sound system should be provided to offer a variety of mood-enhancing or calming music. The walls and ceilings should be sound-insulated so that the child is not disturbed by noise from adjacent areas (see HTM 2045, ‘Acoustics: Design considerations’ for intrusive noise criteria).

3.191 Clinical equipment does not need to be kept in this room, but it should be located close to the clean and dirty utility rooms.



Quiet room (Snoezelen), Royal Preston Hospital

Snoezelen room

3.192 There are no furniture or fittings in a Snoezelen room, only soft furnishings such as cushions and bean bags. This room does not need natural light. Artificial light should be indirect, with wall/ceiling washing with a dimmable control. The room should be sound-proofed to prevent the ingress of noise from adjacent areas (see HTM 2045, 'Acoustics: Design considerations' for intrusive noise criteria).

3.193 This space should be well-ventilated owing to the heat output of some of the equipment that is required, such as fibre-optic lighting, kaleidoscopic equipment, wind chimes and air stones.

Kitchen

3.194 The in-patient kitchen should provide a 24-hour service. Meals will be prepared in the main hospital kitchen. However, the kitchen on the unit should store a range of foods that can be prepared and served to the children outside the normal mealtime service. See 'Better Hospital Food Programme: Catering services for children and young adults' (NHS Estates, 2003) for details of typical foods that should be made available (<http://www.betterhospitalfood.com>).

3.195 The kitchen should therefore be equipped with facilities for:

- preparing beverages and light snacks;
- checking and recording food prior to serving it to patients;



Kitchen, Walton Centre for Neurology and Neurosurgery



- filling patients' water jugs via a dedicated filtered water tap;
- storing dry goods, crockery and cutlery;
- storing a limited amount of perishable food in a refrigerator;
- storing canned food and light snacks;
- separate mechanical and manual washing-up of a limited amount of crockery and cutlery.

3.196 Consideration should also be given to the provision of an ice machine (see HTM 2040, 'The control of legionellae in healthcare premises: a code of practice').

3.197 To meet hygiene and health and safety requirements, all surfaces must be stainless steel. A separate stainless steel hand-wash basin with non-touch taps should be provided. A microwave, water boiler, refrigerator, toaster and dedicated drinking water supply, preferably a drinking fountain, are required.

3.198 Meals are transported to the patients in trolleys. Space is required for the storage of a general-purpose trolley, which is used for the distribution of beverages and water jugs and glasses.

3.199 In the interest of children's safety, the door handle to the kitchen should be located at a high level to prevent unauthorised access.

3.200 The kitchen must not be used for the storage and preparation of baby feeds.

Baby food store and preparation room

3.201 In a children's unit with more than one in-patient area, at least one baby food store and preparation room

should be located in the in-patient unit. Facilities are required for:

- storing the main stock of formula feeds;
- staff to prepare baby feeds and demonstrate the preparation of baby feeds and sterilization of equipment on a domestic scale.

3.202 A sink unit with a cupboard and drawers is required for the storage of bowls, spoons and a working supply of formula feeds. A refrigerator and water boiler are also required. Hand-wash facilities should be provided.

Room for use of a breast pump

3.203 A pleasant room should be provided where a mother can sit in privacy and comfort to express milk for her baby. Special arrangements will need to be made if expressed breast milk is to be stored (see joint letter from Chief Medical Officer/Chief Nursing Officer, Department of Health and Social Security, PL/CNO (99)5).

Linen store

3.204 The type of linen store depends on the linen supply policy: for a top-up system, a room with shelving is required; for an exchange trolley system, a space to park linen trolleys. In both cases, the volume of storage space is determined by the frequency of delivery. Spare pillows, duvets and blankets should be stored in this space.

Clothing store

3.205 Patients are encouraged to wear their own clothing. However, a clothing store is required for a back-up stock, as items may be loaned to some patients. The store should include hanging space for clothing of different sizes and compartmentalised shelving for items such as cardigans and underwear.

3.206 The clothing store and a linen store that is enclosed may be contained in one large space.

General store

3.207 A general store for items in daily use should include floor space for parking mobile equipment and standing pieces of equipment, and adjustable shelves.

Equipment store

3.208 An equipment store should be provided that is available for use by the in-patient unit for the storage of items of equipment not required on a day-to-day basis. Equipment may include beds, cots, cot sides, trolleys and wheelchairs, and a mobile baby bath.

3.209 Ventilators, monitoring equipment, intravenous pumps and naso-gastric food pumps will be stored here.

3.210 Electrical socket-outlets should be provided to enable battery-operated equipment to be recharged.

3.211 Floor space for parking mobile and large items of equipment, and for shelving, is required. The equipment store should be planned so that items can be removed easily, and should include a sub-divided area where particularly fragile and expensive equipment can be held to help prevent damage.

Paediatric assessment unit for emergency patients

3.212 The assessment unit located within the in-patient area should have a minimum of four bed spaces. Each bed space should have dedicated medical gases. Clinical hand-wash facilities with an alcohol hand-rub dispenser should be provided at each bed space.

3.213 Natural light is desirable but not essential. The colour of walls at the head-end should not distort the colour rendering of examination light sources. The unit should be sound-insulated and accessed via a double door suitable for the transfer of trolleys/beds.

3.214 The area must be fully equipped for resuscitation procedures and multi-parameter monitoring. Resuscitation equipment will be stored in this room. Near-patient testing facilities should be located adjacent to this unit.

Admission room for elective in-patients

3.215 This space should be welcoming and comfortable for children. It should be bright and airy, with plenty of visual stimulation to distract children of different ages. A room with an external view is desirable but not essential, as the patient will remain here for a few minutes only. The room should be sound-insulated (see HTM 2045, 'Acoustics: Design considerations' for intrusive noise criteria).

3.216 Furniture and equipment should include an examination couch/trolley, a dressing trolley, a mobile examination lamp, a small desk, a desk chair and a side chair. Clinical hand-washing facilities with non-touch taps and an alcohol hand-rub dispenser are required. Facilities are required for the storage of clinical examination equipment.

Family rest room

3.217 This room is used as a quiet sitting or reading space for parents/carers. Beverage-making facilities should be available. En-suite wheelchair-accessible WC facilities should be provided.

Visitors' sitting room

3.218 The sitting room should be large enough to accommodate several groups of visitors at one time. Its size should increase on a pro-rata basis with the number of beds within the unit. The decor should be selected carefully. People may need to wait here for long periods of time, so comfortable seating is essential, with sofas being ideal. Beverage-making facilities should be available. A TV should be included. En-suite wheelchair-accessible WC facilities should be provided.

Interview room(s)

3.219 At least one interview room should be provided where interviews and discussions can take place in privacy and comfort, for example with parents/carers of acutely ill patients. These rooms can be used in conjunction with the treatment room, as they are furnished in a child-friendly way.

3.220 There should be a separate exit door into the main corridor. It is important that family and friends are able to leave the area if they so choose, after receiving bad news, without having to meet up with other anxious families or walk back through the clinical area itself. A telephone should be provided. An en-suite wheelchair-accessible WC should be included.

Education facilities

3.221 If dedicated facilities are to be provided, there are certain key elements that should be included:

- discrete, distinct spaces for teaching that are large enough to allow for different layouts, to suit a range of activities including practical sessions;
- smaller "satellite" teaching spaces that can be used for exams, interviews and other activities where privacy is required;
- adequate and accessible storage space, both for the personal belongings of staff and for teaching materials;
- an outside area (accessible from the education facility) for play, study and recreation, wherever possible;
- adequate staff facilities – usually an administrative office and a staff room;
- wheelchair-accessible WCs, separate for staff and pupils.

3.222 All spaces should offer flexibility and adaptability to allow for children's varying needs. It is useful to have occasional access to a larger space for social events and workshops. This may be provided by a large classroom, combining two classrooms together, or in some cases using a hospital social area.

3.223 If dedicated facilities are not planned, access is required for a visiting teacher to office space, storage space and Internet and audiovisual resources at the bedside. See 'Meeting the educational needs of children and young people in hospital' (DfES/NHS Estates, 2003).

Imaging equipment bay

3.224 An open bay should be provided in the in-patient unit close to the clinical equipment store for the storage of imaging equipment and protective lead aprons. A socket-outlet should be provided for charging the imaging equipment. Lead aprons must be stored vertically to maintain their protection. Suitable wall brackets attached to a load-bearing wall or mobile stands are required for this purpose. The bay should be 5 m² to accommodate one mobile X-ray and a single ultrasound unit. A larger storage area, 8 m², will be required if mobile X-ray image intensifiers are used.

PAEDIATRIC INTENSIVE CARE UNIT (TERTIARY HOSPITAL ONLY)

3.225 The size and configuration of a PICU located in a tertiary hospital should mirror that described in HBN 57, 'Facilities for critical care'. The bed spaces, clinical support areas and staff support facilities are as described in detail in HBN 57.

3.226 The environment within the unit should not only support a critical care model but also be child-friendly (see generic advice in 'Friendly healthcare environments for children and young people'; NHS Estates, 2003). Facilities for parental accommodation should be provided in close proximity to the PICU.

3.227 Natural daylight is essential, and each bed space will require controllable blinds. It is beneficial to patients to be able to tell night from day. Artificial light should be indirect, with wall/ceiling washing and dimmer controls. Overhead equipment gantries often offer these uplighting opportunities.

3.228 Individual examination lights should be versatile, controllable and dimmable. The ambient artificial lighting should be full-spectrum to simulate daylight. The colour of the walls, especially at the head-end, should not distort the colour rendering of examination lights. It should be possible to clearly define and easily identify changes to children's tone and colour.

3.229 Specified fabrics, finishes, furniture and fittings should not produce smells, or gases such as benzene and formaldehyde that may cause or exacerbate a skin condition or asthma. The PICU should be sound-insulated using acoustic ceiling tiles and insulated partitions.

3.230 Ceiling-mounted artwork can be particularly beneficial when children remain in a supine position for

many hours and days. This artwork should be of a type that does not present infection control issues.

3.231 Parents benefit enormously from wall space that is devoted to case histories and photographs. Interestingly, they need not always be success stories – it seems to be the communication of shared experiences that helps them.

BEREAVEMENT SUITE (TERTIARY HOSPITAL ONLY)

3.232 The bereavement facility comprises a sitting room with an en-suite wheelchair-accessible WC and an adjacent viewing room (see Appendix 4 Sheet 6). The children’s bereavement suite is additional to that described in HBN 20, ‘Facilities for mortuary and post-mortem room services’.

3.233 The general ambience should be one of quiet and comfort. The suite needs to be sympathetic to grieving families. They should be able to sit and talk, make telephone calls, consume beverages, and wash their hands and faces. At times of death, ritual and ceremony become very important. The environment in which children see their brother or sister is important, as it will become part of their memories of that time. Touch is important, so parents and siblings may value the chance to hold their baby/child and perhaps to lie with him/her.

3.234 The suite should be sensitively decorated, with comfortable furniture, fittings, fabrics and furnishes. Warm pastel colours are appropriate. Carpets and wallpaper finishes can be used in this space. Patterns on furnishings should not be used, to avoid symbolic misinterpretation across cultures and religions.

3.235 The rooms should be sound-insulated to prevent the egress of sounds from grieving relatives or the ingress of noise from adjacent areas. Wall insulation and acoustic tiles will help to achieve the desired ambience. A sound system for relatives’ own choice of music can be a useful inclusion (see HTM 2045, ‘Acoustics: Design considerations’ for intrusive noise criteria).

3.236 Subdued, indirect dimmable artificial light with a warm spectral range is suitable. This can be supplemented with the occasional table lamp. Daylight is not essential. A back-lit stained-glass window of an abstract design, acceptable to all religions, is recommended.

3.237 The viewing room should be equipped with a standard trolley. For infants and young children, a “Moses” basket or similar carrier should be available. Other furniture should include a wardrobe or domestic chest of drawers where clothing, linen and amenities required for limited preparation of the deceased person may be stored.

3.238 The Child Bereavement Trust (CBT) has published a number of documents to inform families, clinicians and others on bereavement issues – see <http://www.childbereavement.org.uk>. See in particular ‘Best practice guidelines for the care of the family when their child or baby dies in the special care baby unit, neonatal or paediatric intensive care unit, the paediatric ward or the A&E unit’ (CBT, forthcoming).

STAFF SUPPORT FACILITIES

Staff rest room

3.239 A staff rest room should be provided away from the patient areas and general circulation areas, where staff can relax but be called to the clinical area in case of an emergency.

3.240 The need to balance peace and quiet with the noise of TVs, videos and microwaves should be borne in mind. Natural light should be maximised.

3.241 The staff rest room may be used for meal, tea and coffee breaks. Account should be taken of the total number of staff working in the area and also the effect of shift overlaps. The rest room should be large enough to incorporate a galley kitchen, with an integral dining area and additional space for sitting comfortably in easy chairs. It should have natural daylight and an outside view. Smoking policy should be clarified so that both smokers and non-smokers are catered for, in separate areas. Access should be controlled via a close proximity card system to ensure personal safety. A call system is essential to recall staff to the clinical area in case of emergency.

3.242 Facilities are required for making beverages and snacks and for washing-up. Equipment should include a sink/drain, refrigerator, dishwasher, microwave oven, toaster, drinks machine and storage space for crockery and dry goods. A fresh drinking water source, preferably a drinking fountain, should be installed. A separate non-touch hand-wash basin is required. The beverage bay may be provided as a separate space adjacent to the staff rest room, but is normally designed as an integral part of the rest room.

Staff changing facilities

3.243 Separate changing facilities are required for female and male staff. The number of WCs and showers should be calculated on the basis of the number of staff using the facility. For guidance see the Workplace (Health, Safety and Welfare) Regulations 1992. A minimum of two WCs/showers is recommended for each changing room.

3.244 Space is required for changing, clothes storage, showers and sanitary facilities. Estimates of changing space and locker provision should take into account the numbers of full-time and part-time staff, including

trainees and students. Separate changing rooms for males and females are needed, each with its own shower room, hand-wash basin, shaving point, power-points for hair dryers and a large, well-illuminated mirror with a shelf. The sanitary and shower facilities should be provided in self-contained, full-height rooms to provide maximum privacy. Cubicle partitions are not acceptable.

3.245 Steps should be taken to ensure the security of personal belongings left in the staff changing area. Code-entry lockers are needed for permanent staff. A number of coin-operated, returnable lockers should be available for transient visitors. Access to the area should be controlled by a close proximity card system.

3.246 Extract ventilation is required to provide sufficient air changes.

Seminar room

3.247 A seminar room should be provided within the children's unit. The space should accommodate multidisciplinary teams of at least 20 people and contain slide and computer projection facilities, wallboards, imaging viewing facilities, computer terminals with access to the Internet and local colour printers, along with secure storage for audio-visual aids, computer equipment and printers. An intercom system should be installed between the seminar room and the clinical area to recall staff in an emergency. The hospital education centre is used for other, more formal and programmed teaching events such as a skills laboratory.

Departmental office accommodation

3.248 The need for personal space is not in question, and where space is at a premium it is suggested that a number of offices are located adjacent to, rather than within, the patient areas.

3.249 Offices are required for:

- the clinical director;

- the manager;
- the clinical staff (doctors, nurses, allied health professions);
- administrative and support staff (data clerks etc);
- the outreach team;
- clinical teaching staff;
- research staff;
- Local Education Authority teachers (see 'Meeting the educational needs of children in hospital' (DfES/NHS Estates, 2003).

3.250 Each project team should base their decision concerning the number of offices required within the children's unit on local knowledge about alternative and proximal locations within the building.

3.251 An increase in the use of IT may provide the opportunity for reducing the size and number of single-occupancy offices. An increase in hot-desking is anticipated within the next few years. A much more flexible and innovative approach to office accommodation is required, with greater use of multi-function rooms for meetings, interviews or staff appraisals.

3.252 Wherever possible, office spaces should have windows and natural ventilation, and be equipped with a computer terminal and internal and external telephones..

Staff meeting/interview room

3.253 A meeting room is required to seat a maximum of six people, with comfortable furnishings for conducting staff interviews or professional reviews with other staff. It is unnecessary to include a desk and there should be no telephone; however, an emergency call system operated from the communications base within the in-patient area should be provided.

4 Other general functional and design considerations

COMMUNICATIONS

4.1 Provision of effective communication systems is essential for the efficient management of the children's unit. These are described below.

Telephones

4.2 In locations where public telephones are provided, at least one should be mounted at a height suitable for wheelchair users and the handset fitted with an inductive coupler to assist people using a hearing aid.

4.3 Telephones should be provided in accordance with the whole-hospital policy for telephone services. Where telephones are provided for reception use, consideration should be given to hands-free systems. Ringing telephones in and adjacent to treatment spaces are a particular nuisance at times of peak activity, and consideration should be given to the installation of a system which will enable calls to be intercepted at an appropriate alternative location.

4.4 Staff based in different parts of, and staff moving around, the children's unit are required to communicate with each other. Unnecessary or abortive staff movement can be reduced, and messages can be received "hands-free" of communications equipment, by provision of an intercom system. This system should utilise the standard telephone system and telephone instruments, be simple to use, and cover locations of high staff activity. It can also accommodate a wide range of functions, both routine and emergency, and enable staff to communicate rapidly and when they require assistance, for example with calls:

- to all telephone instruments or a selected group of telephone instruments within the children's unit. This facility can be used to locate a member of staff, for example a doctor, a senior nurse or a porter, and for emergency calls for assistance in case of clinical need or potentially violent incidents;
- between two selected telephone instruments, including:
 - (i) calls for assistance. For example, a nurse working alone could open a communication channel to the communications base and call for assistance without leaving the patient;

(ii) routine communications;

- to intercom systems in other departments, for example the diagnostic imaging department.

4.5 Public telephones for patients and escorts should be located adjacent to the waiting area. This should include a freephone telephone for taxis.

Fax

4.6 Fax equipment will be required for communication with various outside agencies.

Patient-to-staff and staff-to-staff call systems

4.7 Patient-to-staff call systems should be provided in all spaces where patients may be left alone temporarily, such as treatment rooms and patient WCs. Staff-to-staff call systems should be provided in all spaces where staff consult, examine and treat patients. The staff systems must have a distinctive ring from the patient system. Terminals to the call systems should be located at the communications base.

Staff-to-patient communications

4.8 Project teams will need to consider how patients, including those with visual and auditory impairments, can be kept informed should they be required to wait temporarily prior to assessment. Options include announcements:

- by a member of staff personally;
- over a loudspeaker system;
- using a visual display unit.

CONTROLLED DRUGS CUPBOARD

4.9 Repeater indicator lights from the controlled drugs cupboard should be provided at a continuously staffed location, for example the reception desk or communications base.

NOISE AND SOUND ATTENUATION

4.10 Any unwanted sound is a noise and may disturb patients and staff. Noise-sensitive areas should be located as remotely as possible from internal and external sources of unavoidable noise.

4.11 Speech privacy is essential in spaces where personal and confidential discussions are held, such as interview rooms and any clinical areas; discussions should be unintelligible in adjoining spaces.

4.12 Particular care should be taken where the adjoining spaces are waiting areas.

4.13 Sound transmission can be reduced by use of sound-containing partitions and doors. Use of soft floor-coverings and acoustic treatment of walls and ceilings (where hygienically acceptable) will improve sound absorption in a space (see HTM 87, 'Textiles and furniture').

4.14 Induction loops should be fitted where necessary in reception areas.

FINISHES

4.15 The quality of finishes in all areas should be of a high standard. Guidance on the selection of finishes is provided in the relevant Health Technical Memoranda (HTMs) – see 'References'.

4.16 Finishes should be robust enough to withstand accidental impact, and additional protection should be provided at likely points of contact. Trolleys and items of mobile equipment that may cause damage should be appropriately buffered. Cleaning regimes should be considered when materials are selected.

4.17 The infection control team should advise on the appropriate finishes throughout the project (see HFN 30, 'Infection control in the built environment').

Colour

4.18 Colours of surfaces in spaces occupied by patients should not distort the colour rendering of light sources.

4.19 It must be possible to clearly define and easily identify changes to a patient's skin tone and colour. Decor should be light and pleasant.

Floors

4.20 Floors in the children's unit have to withstand harsh treatment. Therefore, the floor coverings and skirtings should be smooth, easily cleaned, contribute to the provision of a non-clinical environment and, at the same time, be hard-wearing. They must not present a hazard to disabled people nor restrict the movement of wheeled equipment. Floors should not be, nor appear to be, slippery, and the patterning should not induce disorientation.

4.21 Floor finishes in clinical areas should be slip-resistant vinyl sheeting; joints should be welded. Such flooring is tolerant of small movements in the structural floor. The floor screed must be perfectly smooth, crack-free and stable. Adhesives must be powerful enough to

resist the formation of "waves" in the floor finish that can result when heavy equipment is moved. Sufficient time should be allowed for the adhesive to set prior to use. Thresholds at doorways between adjacent rooms are points of stress in the floor finish, and their design requires particular attention.

4.22 Carpets should not be used in clinical areas. Carpets may be suitable for use in the offices, staff rest room, overnight stay accommodation if included, and visitors' sitting rooms, but not the reception area. Carpets are extremely difficult to keep clean; therefore they must be meticulously monitored and maintained.

4.23 Changes of floor level are not acceptable and should be avoided wherever possible. Surface drag, static electricity, flammability, infection hazards and impermeability to fluids must be considered. HTM 61, 'Flooring' should be consulted for advice on user requirements and performance selection.

Walls

4.24 Wall finishes in the children's unit must be durable and able to withstand wet cleaning and the accidental impact of trolleys and heavy mobile equipment. Especially vulnerable points should have additional protection. Smooth paint surfaces are the easiest for cleaning, for example eggshell or vinyl silk emulsion.

4.25 Vinyl wall-coverings can be used in rest, interview and relative rooms.

4.26 Ceramic wall tiles are preferable in kitchen, shower and toilet areas.

Doors and frames

4.27 Doors and frames are particularly liable to damage from mobile equipment, and materials that will withstand this should be used. All double-swung doors should incorporate clear glass vision panels at the level of children and adults, but privacy, safety, or other considerations may require that the panels should be capable of being obscured. Where necessary, doors should be capable of being fastened in the open position (see HTM 58, 'Internal doorsets').

4.28 Doors should be designed to be resistant to damage from trolleys etc and should ideally be automatic in operation.

4.29 The requirements of the Disability Discrimination Act (1995) and BS 8300, 'Design of buildings and their approaches to meet the needs of disabled people – Code of practice' (2001) mean that the specification of doors and door furniture has become more stringent. The revised Approved Document M of the Building Regulations (2004) includes many of the requirements stated in BS 8300: 2001.

4.30 Furthermore, the new BS EN standards for door furniture require CE (Conformité Européenne) marking of items of architectural ironmongery intended for use on fire/smoke-resisting and escape doors. Many of the requirements are now in force.

4.31 It is therefore important that designers, specifiers, facility managers and PFI consortia are aware of these regulations. Expert advice should be sought from a registered architectural ironmonger who can assist in the specification of architectural ironmongery to comply with the current regulations. For further details on the latest BS EN standards for architectural ironmongery, and details of registered architectural ironmongers, see the Guild of Architectural Ironmongers website, <http://www.gai.org.uk>.

Windows

4.32 In addition to the various statutory requirements concerning windows, the following aspects require consideration: illumination and ventilation; insulation against noise; user comfort; energy conservation; the prevention of glare; and the provision of a visual link with the outside world. Windows should, if possible, have a pleasant outlook.

4.33 Guidance on types of window and safety aspects is available in HTM 55, 'Windows' and Approved Document N, 'Glazing – safety in relation to impact, opening and cleaning', The Building Regulations, DETR, 1999.

Clinical hand-wash basins

4.34 The number of basins and their siting should be discussed and approved with a microbiologist at the design stage. The basins should be placed in a prominent position to remind the staff of the importance of hand-washing.

4.35 All basins should have curved sides with no plugs, no overflows, and be fitted with infrared non-touch taps which should not be placed over the waste outlet. Mixer taps should be used as very hot or very cold water discourages hand-washing. There must be sufficient space around the basin to wall-mount alcohol gel, liquid soap, hand disinfectant and paper towels. The splash-back should be a single waterproof sheet or seal mounting with polyurethane or wallglaze.

4.36 Non-touch taps are either mains powered or battery operated. Mains power is recommended, and a 3 amp fused spur is normally required.

4.37 Non-touch soap dispensers are now available, and their use in conjunction with non-touch taps at every clinical hand-wash basin is recommended.

4.38 The Government has confirmed targets for the public sector to reduce water consumption by at least 10%. The use of non-touch taps and WC flushvalves has helped to reduce water consumption in these areas by 30% in the short term and 50% in the long term. For further details of projects involved in water reduction, see the Government watermark website <http://www.watermark.gov.uk>.



Left – lift lobby; right – glass panel, Bristol Royal Hospital for Children; photographer: Jerry Hardman-Jones

Corridors

4.39 Corridor design can be improved by:

- reducing their length;
- introducing changes in shape by inclusion of waiting spaces and lobbies;
- introducing daylight;
- providing views of outside areas such as landscaped courtyards;
- varying the colour of walls;
- the use of works of art.

Maintenance and cleaning

4.40 Materials and finishes should be selected to minimise maintenance and be compatible with their intended function. Building elements that require frequent redecoration or are difficult to service or clean should be avoided. Special design consideration should be given to corners, partitions, counters and other elements that may be subjected to heavy use. Wall-coverings should be chosen with cleaning in mind. Guidance on these aspects is given in HTM 56, 'Partitions', HTM 58, 'Internal doorsets' and HTM 61, 'Flooring'.

4.41 The infection control team should advise on the maintenance and cleaning of the materials and finishes (see HFN 30, 'Infection control in the built environment').

5 Engineering services

INTRODUCTION

5.1 Facilities for the delivery of healthcare to children and young people are subject to continuous change. It follows that the engineering services needed to support these facilities will also change. This guidance is not, therefore, intended to be prescriptive in respect of design solutions; it sets out to provide a point of reference from which individual designs can be developed.

5.2 This chapter assumes that the infrastructure of the main hospital is able to support the children's unit in terms of primary services, including a steam or medium/low pressure hot water supply, and a high/low voltage electrical supply.

5.3 It provides general guidance on the spectrum of engineering services that will be required in a children's unit. Certain departments within the facility will require specialised services, and reference should be made to the HBNs that refer specifically to those departments, in particular:

- HBN 6, 'Facilities for diagnostic imaging and interventional radiology':
 - Volume 1;
 - Volume 2: 'BMD, dental, neuro and PACS';
 - Volume 3: 'Extremity and open MRI, magnetic shielding and construction for radiation protection';
- HBN 12, 'Out-patients department', Supplements 2 and 3;
- HBN 57, 'Facilities for critical care'.

5.4 Engineering services should be designed in the context of total life-cycle cost, providing an optimal solution that takes into account the cost aspects of construction, longevity, operation and maintenance, energy, and ultimate replacement.

ENERGY CONSERVATION AND SUSTAINABILITY

5.5 The commitment of the NHS to sustainable development is encapsulated in the document

'Sustainable development in the NHS' (NHS Estates, 2004). While this document considers a wide range of sustainability issues, one area identified as having a major impact on the environment is the use of energy. The minimising of environmental impact by ensuring that energy is only used necessarily and efficiently is considered in this section in respect of:

- natural daylighting;
- natural ventilation;
- night set back (see [paragraph 5.33](#));
- building regulations;
- heat recovery.

5.6 Efforts should be made to maximise the use of natural lighting. Passive solar design (PSD) should be used to ensure, insofar as it is possible, that areas such as operating theatres, recovery wards and office areas are located where they can benefit from natural daylight, while areas that do not benefit, for example stores, toilets and utility rooms, are located towards the core of the facility.

5.7 Areas where glare may be a problem, for example rooms where visual display units (VDUs) are routinely used, should similarly be located away from direct natural daylight.

5.8 Natural ventilation of rooms should be used wherever appropriate. The design should incorporate measures for minimising solar heat gains which, if uncontrolled, will precipitate a need for mechanical ventilation. Measures to minimise the need for cooling should include locating temperature-sensitive accommodation away from south-facing fascias, shading windows with brise soleil (a permanent sun shade outside an external wall), and using solar-reflecting glass where this is cost-effective.

5.9 Where operational policies permit, energy-using systems including heating, ventilation, cooling and lighting should be automatically controlled to reduce energy input to the facility, or sections of it, when it is not in use, for example at night or at weekends.

5.10 Where appropriate, the facilities should be designed to meet the requirements of the Building Regulations 2000 (Part L2).

5.11 Where economically viable, energy recovery systems should be used on air-conditioning and ventilation systems.

SPACE REQUIREMENTS FOR SERVICES AND PLANT

5.12 A high level of availability of engineering plant and services is critical to the ability of the facility to function safely and efficiently. It is therefore essential that the building design should incorporate adequate space for the installation and maintenance of plant, ductwork, pipework and cabling.

5.13 Space for plant and services should provide:

- easy and safe means of access;
- secure accommodation protected from unauthorised access;
- adequate space around plant and services to enable inspection and maintenance;
- sufficient space to enable redundant plant to be removed without the need to dismantle other major plant.

5.14 Recommended spatial requirements for engineering plant and services are contained in HTM 2023, 'Access and accommodation for engineering services'. Further useful information regarding the provision of space for plant is contained in BSRIA Technical Note TN 9/92 (BSRIA, 1993), and for building services distribution systems in BSRIA Technical Note TN 10/92 (BSRIA, 1992).

5.15 Wherever possible, space should be allowed within walls and above ceilings to facilitate the concealment of electrical and mechanical services. Securable, demountable panels should be provided to allow access to control and isolation valves as well as any equipment that is necessarily concealed within the spaces. Each panel should be clearly, but discreetly, marked to identify the controls or equipment located behind the panel. The use of demountable panels in areas where sterility is paramount (that is, preparation rooms and theatres) is not acceptable.

5.16 In general, but with the exception of drainage, engineering services should not be brought from the above-ceiling space of a floor below. Service distribution to a particular area should be contained in the service spaces on that floor.

5.17 Wherever possible, access to plant and services should be from plantrooms or maintenance areas, but

where this is not possible, every endeavour should be made to effect access from general circulation areas and not from operational spaces.

5.18 In areas where wall-mounted heat emitters are installed, they should be contained within a 200 mm wide perimeter zone. The 200 mm zone, together with the space for minor engineering ducts required to service the emitter, is included in the building circulation allowance. Ceiling emitters may be used as an alternative to wall-mounted emitters to reduce the amount of space required.

5.19 Plantrooms, particularly air-conditioning and ventilation plantrooms, should be located as close as possible to the areas they serve, thus minimising the amount of space necessary to accommodate large ducts. Care should be taken to ensure that noise and structure-borne vibration cannot be transmitted from plant to areas external to the plantroom.

DESIGN FOR SAFETY

5.20 Health and safety legislation imposes a statutory duty on all people who design, manufacture, import, supply, install or erect "articles for use at work" through a range of co-ordinated health and safety regulations enacted under the Health and Safety at Work etc Act 1974.

5.21 Key regulations relating to premises and work equipment are:

- the Construction (Design and Management) Regulations 1994;
- the Management of Health and Safety at Work Regulations 1999;
- the Workplace (Health, Safety and Welfare) Regulations 1992;
- the Provision and Use of Work Equipment Regulations 1998;
- the Health and Safety (Safety Signs and Signals) Regulations 1996;
- the Noise at Work Regulations 1989;
- the Pressure Systems Safety Regulations 2000;
- the Pressure Equipment Regulations 1999;
- the Gas Safety (Installation and Use) Regulations 1996.

5.22 The vulnerability of patients in healthcare premises, where many engineering systems impact on patient safety, introduces additional risks and calls for an increased awareness of the importance of engineering system integrity. Engineering systems must be designed

to be especially robust to ensure that a failure in the quality or continuity of an essential engineering service cannot compromise patient safety.

5.23 The specific vulnerability of children in a healthcare environment requires engineering designers to take particular and additional care when designing and locating systems, plant and equipment. They should not be accessible to, and thereby pose a risk to, inquisitive children. Users should be consulted wherever there is any doubt.

5.24 Designers should be particularly aware of the role of engineering design in the control of infection, for example in respect of water services (see HTM 2027, 'Hot and cold water supply, storage and mains services' and HTM 2040, 'The control of legionellae in healthcare premises: a code of practice') and ventilation systems (see HTM 2025, 'Ventilation in healthcare premises').

5.25 Clearly identified devices for the control and isolation of primary engineering services should be located in areas where they can be protected against unauthorised interference, ideally in plantrooms, engineering service spaces or circulation areas. They should not be located in users' working areas.

5.26 The need to employ formal 'Permit to Work' and 'Permit to Use' procedures should be noted, particularly in respect of high-voltage electrical systems (see HTM 2021, 'Electrical safety code for high voltage systems (Escode – HV)') and medical gas systems (see HTM 2022, 'Medical gas pipeline systems'). It should be noted that changes in medical practice, for example in surgical procedures (see HBN 26, 'Facilities for surgical procedures'), will impact on the provision of facilities and the safety aspects of engineering design, and this must be accommodated in the design process.

FIRE SAFETY

5.27 The policy in respect of fire safety in healthcare premises is set out in the Firecode series of documents. The 'Fire Practice Notes' series provides further guidance on specialist aspects of fire precautions.

5.28 It is important to establish during the design stage those aspects of fire strategy that may affect the planning, design, configuration and structure of the facilities. At appropriate stages of the design process, the architect and engineer should discuss and verify their proposals with the relevant fire authorities, and ensure that the project team and all other planning staff are fully acquainted with the fire safety strategy for the design. This will include operational aspects (staff responsibilities etc), equipment provision, and building and engineering layouts. HTMs 57–60 provide detailed information on the selection of fire-resistant building components and materials.

5.29 Where a children's unit is created within an existing hospital, either as a conversion of an existing building or as a new building on an existing hospital site, it is essential that the fire strategy for the unit is integrated with the fire strategy for the whole hospital. This particularly relates to the need to ensure compatibility between existing fire detection and alarm systems and those proposed for the new facility.

ENGINEERING SERVICES (MECHANICAL)

General scope

5.30 The mechanical services installation includes the distribution of the following services:

- heating;
- hot and cold water;
- ventilation systems;
- refrigeration plant;
- environmental control and building management systems;
- medical gases;
- steam and condensate systems;
- sterilizing and washer-disinfector equipment.

5.31 For the purposes of this document, the installation is deemed to include each system from the point of entry to the department to the final connection to service outlets or specific equipment.

Heating systems

5.32 General space heating requirements can be met either by wall-mounted low-pressure hot water radiators or by ceiling-located low-pressure hot water emitters. In accordance with consumerism requirements, single-bed wards should be provided with a facility for adjustment of room temperature by the occupant, although a facility for disablement of this control by nursing staff should also be provided. Temperatures in multi-bed wards should be adjustable from the nurse base.

5.33 The heating system should be controlled by a Building Management System (BMS) and the children's unit should be zoned to allow areas in intermittent use, for example day case units and clinics, to be set back or isolated independently of those areas in 24-hour use. During out-of-use hours, heating throughout the building should be controlled to a minimum "set back" temperature of 10°C. The controls should be provided with a manual override to enable restoration of the plant to full operational status at short notice.

5.34 Where wall-mounted radiators are used they should be of the low surface temperature type, and surface temperature should not exceed 43°C. Exposed heating pipework, accessible to touch, should be encased or insulated. Further information is given in HGN “Safe” hot water and surface temperatures’.

5.35 Radiators should normally be located under windows or against exposed walls, with sufficient clear space between the top of the radiator and the window sill to prevent curtains reducing heat output. To prevent injury should a child fall against it, care should be taken to select panel radiator designs that have smooth profiles and that do not have raised top weld seams.

5.36 There should be sufficient space under a radiator to allow cleaning machinery to be used. Where a radiator is located on an external wall, back insulation should be provided to prevent excessive heat transmission through the building fabric.

5.37 All radiators should be fitted with thermostatic valves of robust construction, selected to match the pressure and temperature characteristics of the system. The thermostatic valve, fitted with a tamper-proof facility for pre-setting the maximum room temperature, should be controlled via a sensor located integrally or remotely as appropriate. To provide frost protection, at its minimum setting the valve should not remain closed below a defined temperature.

5.38 Where appropriate, heating controls should be provided to modulate heating circuit flow temperatures in accordance with external temperature.

5.40 Radiators may also be used to offset building fabric heat losses in mechanically ventilated spaces. The system should be designed to ensure that the heating and ventilation systems operate in a co-ordinated manner and do not cause the space to overheat.

5.41 Ceiling heating panels may operate at higher surface temperatures than 43°C as long as the surface is not accessible, for example by a climbing frame. Heating panels should preferably run around the perimeter of the building. Panels should not be located over bed-heads or over examination couches etc.

5.42 Ceiling panels should be selected to aesthetically match the adjacent ceiling and should be sealed to the adjacent ceiling by means of a gasket or similar.

5.43 Heating loops of ceiling panels should be controlled by automatic valves located above the ceiling and actuated from room thermostats. In large spaces, several loops should be provided, each controlled from its own thermostat to serve separate zones within the space.

Space cooling systems

5.44 Space cooling is very expensive in terms of energy cost and should only be used where thermal modelling has shown the use of cooling to be essential to the maintenance of a comfortable environment for staff and/or patients, or to ensure satisfactory operation of equipment.

5.45 Space cooling may be provided through a mechanical ventilation or air-conditioning system (see below), by local split system fan coil units, by chilled beams, or by passing chilled water through the heating circuits of a ceiling heating system.

5.46 Split system fan coil units can operate either by using a refrigerant directly (direct expansion) or by using chilled water. In many cases where a small amount of local cooling is required, for example a computer hub room or an uncomfortably warm nurse base, a direct expansion unit will be appropriate. Where the cooling load is larger, for example a number of units operating in relatively close proximity, and where general air-conditioning is not appropriate, a small, central packaged water chiller may be the preferred solution.

5.47 Units and circuits serving local areas should be controlled by thermostats located within those areas.

5.48 The use of chilled beams in wards and other clinical areas is not advocated unless it can be demonstrated that the chilled beam units can be regularly cleaned to the satisfaction of the control of infection officer/nurse.

Hot and cold water systems

5.49 Hot and cold water storage and distribution systems should be designed in accordance with the requirements of HTM 2027, ‘Hot and cold water supply, storage and mains services’ and HTM 2040, ‘The control of legionellae in health premises’.

5.50 While cold water storage at a high level will be the norm, care should be taken to ensure that all equipment proposed for the facility is capable of operation from the available static head. Where the static head is insufficient, a pressurisation set incorporating dual pumps should be installed.

5.51 All cold-water pipework, valves and fittings should be insulated and vapour-sealed to protect against frost, condensation and heat gain.

5.52 The domestic hot water supply should be taken from the calorifiers installation at a minimum outflow temperature of 60°C ± 2.5°C and distributed to all outlets in a manner that ensures a return temperature to the calorifiers of at least 50°C. Exposed hot water pipework, accessible to touch, should be encased or

insulated. Further information is given in HGN “Safe” hot water and surface temperatures’.

Ventilation systems (general)

5.53 Mechanical ventilation systems are expensive in terms of capital and running costs, and planning solutions that optimise the use of natural ventilation should be sought. Where it is intended to use mechanical ventilation, reference should be made to the detailed information in HTM 2025, ‘Ventilation in healthcare premises’.

5.54 It is acknowledged that planning constraints imposed by the building shape and/or the need for certain departmental adjacencies may result in a measure of deep planning, necessitating mechanical ventilation and, possibly, cooling. Ventilation of certain spaces may also be a statutory requirement, for example where endoscope disinfection is undertaken.

5.55 The need for mechanical ventilation can be minimised by ensuring that wherever practicable, core areas are allocated to rooms that would require mechanical ventilation irrespective of their location within the building, for example toilets, clean and dirty utility rooms, spaces where clinical or functional requirements impose specific environmental needs, and areas where windowless accommodation is acceptable.

5.56 Areas that are occupied on a transient basis only, for example stores, are also suitable for core accommodation.

General extract system

5.57 A general extract system will be required in rooms where the production of non-toxic odours and vapours is likely, to prevent their egress into adjacent areas. Examples will be ward kitchens and beverage preparation areas.

Foul extract system

5.58 A separate foul extract system will be required for sanitary facilities, dirty utilities and areas with a similar function. Foul extract systems should employ dual motor/fan units with automatic changeover facilities to ensure maintenance of negative pressure in the rooms at all times when the extract system is required to operate.

Supply only ventilation

5.59 Tempered mechanical supply ventilation should be provided in areas where it is desirable to maintain the room at a positive pressure to prevent the ingress of less clean air, for example clean utility rooms.

Ventilation in isolation rooms

5.60 Detailed guidance on the provision of isolation rooms in acute hospitals is given in HBN 4 Supplement 1, ‘Isolation facilities’ (forthcoming). It describes two types of isolation room:

- single room with en-suite sanitary facilities;
- single room with en-suite sanitary facilities and a ventilated lobby.

5.61 The majority of children who need to be isolated can be cared for within single rooms with en-suite facilities. A smaller number of children will need to be cared for in a single room with en-suite sanitary facilities and a ventilated lobby.

Specialist ventilation systems

5.62 Certain departments within the facility will require specialist ventilation systems, and reference should be made to HTM 2025, ‘Ventilation in healthcare premises’ and the HBNs that refer specifically to those departments, in particular:

- HBN 6, ‘Facilities for diagnostic imaging and interventional radiology’:
 - Volume 1;
 - Volume 2, ‘BMD, Dental, neuro and PACS’;
 - Volume 3, ‘Extremity and open MRI and construction detail for diagnostic imaging’;
- HBN 12, ‘Out-patients department’, Supplements 2 and 3;
- HBN 26, ‘Facilities for surgical procedures’;
- HBN 57, ‘Facilities for critical care’.

Cryosurgical exhaust

5.63 Cryosurgical exhaust from high-pressure liquid nitrogen systems should be scavenged and discharged via a pipe taken externally to a position protected from back-draughts and clear of any openings to the building to avoid reintroduction of the exhaust gases into the building. This should comply with the COSHH Regulations.

Environmental control and building management systems

5.64 All engineering plant and equipment associated with providing the internal environment should be monitored and regulated by a BMS in accordance with the provisions of HTM 2005, ‘Building management systems’. The BMS should also monitor, measure and record energy consumption for the unit.

5.65 If the main site already has a BMS, the unit should be set up as an outstation of the main BMS, so that systems within the unit can be monitored and controlled at a central station. Management of the engineering systems within the facility should be possible both from the central station and from the outstation itself.

5.66 Links from the outstation to the central station can be achieved by, for example, hard wire, modem or radio communication. However, it is important to ensure that sensitive medical equipment is not adversely affected by radio communication interference.

Medical gases

5.67 Medical gases should be provided to the various clinical areas in accordance with HTM 2022, 'Medical gas pipeline systems'.

Oxygen

5.68 The main hospital's vacuum insulated evaporator (VIE) should have the capacity to satisfy the requirements of the unit. If this is not the case, consideration should be given to increasing the capacity of the VIE. The provision of a local oxygen manifold should be a last resort.

Nitrous oxide

5.69 This guidance does not envisage the undertaking of surgical procedures within the children's unit, and the provision of a nitrous oxide manifold is not necessary. However, it should be noted that even the informal use of nitrous oxide in a treatment room or elsewhere will require the provision of anaesthetic gas scavenging.

Medical compressed air (400 kPa)

5.70 The main hospital's medical compressed air plant should have the capacity to satisfy the requirements of this department. If this is not the case, consideration should be given to increasing the capacity of the system or the provision of new local plant within a suitably acoustically treated and ventilated plantroom.

Medical vacuum

5.71 Depending on the location and disposition of the main hospital medical vacuum plant, a separate plant may be provided in the children's unit. This should consist of at least two identical pumps, a vacuum reservoir with by-pass facilities, two duplex bacteria filters with drainage traps, appropriate non-return valves, isolating valves, gauges and switches, an operating and indicating system, an exhaust system, and a test point. The plant should have good all-round access for maintenance and should be sited to allow for adequate flows of air to cool the pumps.

5.72 Due consideration should be given to the containment of noise from the plant. A suitable acoustic enclosure may be required to comply with the noise levels deemed acceptable in HTM 2022.

Fire protection systems

5.73 Fire protection systems should comply with the requirements of HTM 81, 'Fire precautions in new hospitals'.

5.74 Dry risers should be provided adjacent to stairwells with branch hose connections at each landing. First aid hose reels and sprinkler systems will not generally be provided unless there is a specific requirement to do so by the local Fire Authority.

5.75 Where there are major IT equipment rooms located within the facility, there may be a need for the provision of a gas extinguishing system.

Steam

5.76 The requirement for steam within the facility will be limited to humidification equipment associated with special ventilation plant to isolation rooms, and that required for sterilization and washer-disinfection equipment, if installed. If available, steam from the hospital's main supply should be used, subject to the requirement for clean steam as set out in HTM 2031, 'Clean steam for sterilization'.

5.77 In the absence of a central steam supply, local steam generators, preferably powered from a firm gas supply, should be used.

ENGINEERING SERVICES (ELECTRICAL)

General scope

5.78 Electrical services will differ depending on the range of services provided from the children's unit. In general, electrical services will include:

- main intake switchgear and distribution board;
- emergency electrical supplies;
- small power distribution systems;
- lighting systems;
- IT cabling systems;
- telephone systems;
- security systems;
- staff call, public address and entertainment systems;
- lightning protection.

5.79 Electrical installations should comply with BS 7671 (IEE Regulations, 16th edition), and HTM 2007 'Electrical services supply and distribution'.

5.80 Care should be taken to avoid mains-borne interference and electrical radio frequency interference affecting diagnostic and monitoring equipment, computers or other sensitive electronic equipment.

Main intake switchgear and distribution board

5.81 The nature of the incoming supply, whether high (HV) or low (LV) voltage, will depend on the capacity of existing site distribution relative to the size of the proposed facility.

5.82 Access to HV equipment rooms must be secure and entry restricted to HV authorised people and HV competent people. Access to LV equipment rooms should be similarly secure, although the restrictions regarding authorised access are less rigorous.

5.83 Wherever possible, equipment should be mounted at a height that gives safe and easy access from a standing position. All switchgear should be lockable in the "off" position.

Emergency electrical supplies

5.84 Emergency electrical provision should comply with the requirements of HTM 2011, 'Emergency electrical services'.

5.85 Ideally, the emergency generator providing electricity in the event of a main supply failure should be capable of providing full (100%) back-up to the exclusion of refrigeration plant serving air-conditioning and comfort cooling plant. If a new generator dedicated to the children's unit is to be installed, this is the preferred solution.

5.86 If an existing generator is to be used, the extent of emergency coverage will be dependent on the spare capacity available, subject to a minimum provision. If this minimum requirement cannot be met, it will be necessary to either replace the existing generator with a larger set, or provide an additional generator dedicated to the facility.

5.87 Where possible, generator rooms should be co-located with electrical intake rooms and associated switchgear.

5.88 Equipment and systems that cannot tolerate the delay inherent in bringing a generator supply on-line, including major treatment, endoscopy and computer facilities, should be further protected against outages by the provision of solid state uninterruptible power supplies.

5.89 In the event of a main supply or local final circuit failure, escape routes should be illuminated by self-contained, battery-powered luminaires, charged continuously from the main supply and capable of providing illumination for a period of 3 hours.

Small power distribution systems

5.90 Depending upon the available capacity of the emergency generator installation, it may be necessary to provide separate essential and non-essential small power distribution systems, as detailed in HTM 2011.

5.91 13-amp switched and shuttered socket-outlets connected to ring or spur circuits should be provided in accordance with the requirements of the room data sheets. It may be preferable for socket-outlets in critical care areas, for example intensive care, to be unswitched, thus obviating the possibility of essential equipment accidentally being switched off.

5.92 Where there is separation between essential and non-essential small power distribution, socket-outlets served by the essential distribution should be clearly marked with an engraved red capital letter "E".

5.93 Wherever possible, cables and cable containment systems should be concealed behind walls and ceilings.

5.94 The special requirements of BS 7671 (IEE Regulations, 16th edition) Guidance Note 7 (Special Locations) in respect of medical locations and associated areas should be adhered to.

5.95 Where equipment is permanently installed, or where there is a possibility of equipment theft, switched double-pole 13-amp spur outlets should be used in preference to socket-outlets. The spur outlet should incorporate a red neon lamp indicating when the supply to the equipment is live.

5.96 Equipment requiring a three-phase supply should be permanently connected to a separate sub-circuit. The sub-circuits, incorporating a circuit breaker, should be fed from the distribution board and terminate in a local isolator.

5.97 Guidance on the power supply requirements for fixed and mobile radiodiagnostic equipment is contained in HTM 2011, while guidance on engineering accommodation for this equipment may be found in HBN 6.

5.98 Adequate provision should be made in circulation areas, for example corridors and lobbies, to enable the use of domestic cleaning equipment having flexible cords up to 9 m in length.

5.99 Isolation switches should be provided immediately adjacent to all engineering plant and equipment, clearly labelled to identify the equipment that they relate to.

5.100 Heating appliances and automatic equipment should be provided with red neon lamps indicating when they are energised. The neon lamps should be incorporated in the control panel of the equipment, in the control switch, or in the socket-outlet or spur unit from which the equipment derives its supply.

Lighting

5.101 To achieve energy-efficient lighting, systems should be designed to:

- maximise natural daylight;
- avoid unnecessarily high levels of illumination;
- incorporate efficient luminaires, control gear and lamps;
- incorporate effective controls.

5.102 See the CIBSE Guide, 'Energy Efficiency in Buildings' (1998), for further information.

5.103 The exterior of the building, including walkways and car parking areas, should be illuminated to a level that enables safe access to the unit. Illumination of the entrance to the building, including canopies if appropriate, should provide a beacon that draws attention to the area and supports wayfinding.

5.104 Lighting within the facility should be co-ordinated with architectural design, including colours and finishes, to create an ambience that welcomes and calms and provides a non-clinical, soft environment in as many spaces as possible. See the CIBSE Lighting Guide (LG2) 'Hospital and Healthcare Buildings' (CIBSE, 1989; under review) for further details, including advocated illumination levels.

5.105 Luminaires complying with the requirements of BS 4533 should be specified.

5.106 Luminaires should not be located directly above beds and patient couches where they may cause annoyance or distress to the patient. They should, however, be located where access for lamp changing and maintenance can be safely and easily achieved.

5.107 Lighting switches should be provided in easily accessible positions within each area, and at appropriate locations in corridors and general circulation areas. In areas with multiple luminaires, switching should allow the selection of luminaires appropriate only to that area requiring illumination.

5.108 Where local circumstances allow, for example clinics and day case facilities, the provision of time switches or occupancy controls using infrared, acoustic or ultrasonic detectors should be considered.

5.109 Generally, luminaires should be fitted with tubular fluorescent lamps equipped with low-loss or high-frequency control gear. Where luminaires are infrequently used, or where the design intent of the architect in respect of ambience dictates, compact fluorescent or tungsten lamps may be used. Where necessary, general lighting should be supplemented with dedicated task lighting.

5.110 Examination rooms should include adjustable ceiling- or wall-mounted examination lamps.

5.111 Each major treatment room should be equipped with a minor operating theatre luminaire. The luminaire should be connected to the essential electrical supply in accordance with HTM 2011, 'Emergency electrical services'. The emergency electrical provision should include a battery back-up in case of a delay in the generator supply becoming available, and also for short-term protection against possible failure of the generator.

5.112 In areas where visual display terminals are in use, general lighting should be designed to avoid any bright reflections from the screen. Generally, the lighting in such circumstances should comply with the guidance given in the CIBSE Lighting Guide LG3 (2002).

5.113 Safety lighting should be provided on primary escape routes in accordance with the provisions of HTM 2011 and the CIBSE Lighting Guide LG2.

Bed-head systems

5.114 Every standard (as opposed to critical care) bed space should incorporate a bed-head unit providing the following:

- 13-amp switched and shuttered socket-outlets;
- oxygen and medical vacuum outlets;
- medical air (optional);
- a bed-head luminaire switch;
- a nurse call button/indicator lamp;
- a staff/staff emergency pull switch;
- a socket for a patient handset;
- IT connection(s);
- a radio/TV headset connection;
- a telephone connection;
- an entertainment system (optional).

5.115 A handset control should also be provided incorporating:

- a nurse call button;
- a reassurance lamp;
- a luminaire switch/dimmer control;
- a radio/TV selector switch;
- a radio/TV volume control.

5.116 Consideration should be given at planning stage to the provision of a commercial system that incorporates all entertainment functions including radio, television, telephone and electronic games.

Information technology and telephone systems

5.117 The approach to the provision of IT and telephone infrastructures within the unit may be dependent on existing systems within the hospital. However, where possible, a structured wiring system as described in the HGN 'Structured cabling for IT systems' should be provided. This will allow a unified approach to the provision of cabling for:

- voice systems;
- data systems;
- imaging systems;
- alarm systems.

5.118 Although this "universal" cabling system is initially more expensive than separate voice and data systems, the long-term cost of ownership is lower.

5.119 In determining the nature of the IT system to be provided, it is necessary to identify:

- areas to be served;
- whether structured cabling will be used;
- what density of outlets is to be provided (not less than two per workstation);
- whether wiring will be on a "flood" or "as required" basis.

Telephone systems

5.120 The extent and complexity of telephone equipment and the associated infrastructure will be dependent on the size of the facility. Guidance on telephone systems is contained in HTM 2055, 'Telecommunications (telephone exchanges)'.

5.121 As stated in the section on IT above, it may be beneficial to integrate voice cabling with the structured wiring system for IT, if provided.

5.122 Incoming calls to the facility should in general be routed through the reception. However, depending on the size of the establishment, a limited number of direct dial inwards (DDI) lines may be considered desirable.

5.123 Coin- and/or card-operated payphones should be provided in the main entrance, preferably in sight of reception where any abuse of the equipment can be seen. Payphones should incorporate acoustic hoods for privacy. At least one payphone should be positioned to facilitate use by disabled people.

Security systems

5.124 Those parts of the facility that are only used during the day, for example clinics, should be protected "out of hours" by an intruder alarm system complying with BS 4737, BS 7042 or BS 5979 as appropriate.

5.125 Walkways, car park areas and the main entrance should be well illuminated at all times. Points of ingress and egress from the facility, and departments within it, should be monitored by high-definition CCTV cameras equipped with a pan and tilt facility and capable of producing high-quality images at low levels of light. The positioning of cameras should be determined with care, aiming for maximum field of coverage. Monitors should be sited at a location that is permanently manned while the building is in use.

5.126 Entrances to wards and other sensitive areas should be protected by one of the variety of electronic access control systems available. Small children should be protected from unauthorised removal from the premises by means of personal protection devices.

5.127 Personal attack alarms should be made available to vulnerable staff, preferably capable of identifying the location of a member of staff in difficulty.

5.128 Rooms in which members of staff are likely to be alone with adult members of the public should be equipped with panic alarm buttons capable of signalling difficulty to a location that is permanently manned while the building is in use.

Staff call, public address and public area entertainment systems

5.129 Where patients may temporarily be left alone, for example toilets, a staff call system should be provided to enable the summoning of assistance if required. The alarm should be capable of operation by a disabled person.

5.130 Each waiting area may be provided with a simple, dedicated, public address system to advise patients of their turn for consultation. This audio system should, where appropriate, be supplemented by a visual system to cater for the needs of people with a hearing impairment, or whose first language is not English.

5.131 Cabling provision should be made for TV/video and piped music/radio systems in main waiting areas and group rooms where shown on the Room Data Sheets.

Lightning protection

5.132 Protection of the building against lightning should be provided in accordance with HTM 2007, 'Electrical services supply and distribution' and BS 6651.

INTERNAL DRAINAGE

5.133 A system of soil and waste drainage including anti-siphon and ventilation pipework should be provided in accordance with BS 5572. Where plastic pipework materials are used, suitable intumescent collars must be fitted when breaching fire compartments, and acoustic wrapping should be applied where drainage runs above wards and other sensitive areas. Plastic pipework should not be used above operating theatres, ICUs, catering areas, or other sensitive departments/locations.

5.134 The gradient of branch drains should be uniform and adequate to convey the maximum discharge to the stack without blockage. Practical considerations such as available angles of bends, junctions and their assembly, as well as space constraints, will normally limit the gradient to about 1:50 (20 mm/m). For larger pipes, for example of 100 mm diameter, the gradient

may be less, but this will require high-quality workmanship if an adequate self-cleaning flow is to be maintained.

5.135 Bedpan washers or macerators should discharge with a short branch to a vertical stack or horizontal drain. The waste should not be installed above or close to heating or hot water mains. If a bedpan washer or macerator discharges to a 100 mm drain, frequently-used large-volume appliances should be situated upstream of its connection to provide additional flushing.

5.136 Provision for inspection, rodding and maintenance should ensure "full bore" access and be located outside user accommodation. The location of manholes within the building should be avoided.

ACTIVITY DATA

5.137 Environmental and engineering technical data and equipment details will be provided in the relevant updated Activity DataBase information. They should be referred to for space temperatures, lighting levels, outlets for power, telephones, equipment details etc. It is the designer's responsibility to ensure that the project team are aware of and approve the engineering service provision included within the activity data sheets. This information should reflect the design philosophies and operational policies for all of the activity areas and meet the risk management strategy agreed with the users. Where variations to the agreed philosophy or strategy are requested by the users, the designers should ensure that the implications of such variations (in clinical and organisational terms) are understood and accepted by the project team.

6 Cost information

6.1 For all types of health building, it is important that building costs and revenue expenditure are kept as low as possible and consistent with acceptable standards. In applying the guidance in this document to determine a detailed design, the need for economy should always be of prime concern, and the activities should be carefully considered so that appropriate space can be shared for similar activities which are programmed to take place at different times. The solution should not be detrimental to the proper functioning of the spaces involved, nor to the needs of the users. Within this general context, NHS Estates' guidance provides a synopsis of accommodation for health buildings, which the Department of Health recommends for the provision of a given service.

DEPARTMENTAL COST ALLOWANCE GUIDES

6.2 Departmental Cost Allowance Guides (DCAGs) related to this HBN are officially notified in 'Quarterly Briefing', published by NHS Estates. A full listing of all DCAGs is published in the 'Healthcare Capital Investment' document, a hard copy of which can be obtained from NHS Estates; copies can also be downloaded from <http://www.nhsestates.gov.uk>. Further information on this can be obtained from NHS Estates; telephone 0113 254 7000.

6.3 The attention of the project team is drawn to guidance given in the Capital Investment Manual (Business Case Guide) published by The Stationery Office. This publication seeks to reflect the important changes that have taken place over recent years, both with the introduction of the NHS reforms and with the changing patterns of healthcare delivery. This new process is intended to reduce unnecessary and often expensive planning work that may subsequently prove to be abortive, and emphasises the necessity for a sound business case in support of both the capital and revenue expenditure involved. The Capital Investment Manual also states that the capital works estimate of the intended scheme should be based, wherever applicable, on industry norms such as the DCAGs plus a percentage to cover for on-costs.

6.4 The DCAGs for this HBN reflect the total building and engineering requirements and accommodation that children's facilities will require when incorporated into an

acute general hospital where the common use of services will be available. Costs are based on a typical two-story new-build unit, on a greenfield site with no planning constraints.

6.5 DCAGs are exclusive of VAT, building and planning fees and all Local Authority charges, and are based on a Location Factor of 1.

ON-COSTS

6.6 It is important to bear in mind that an allowance for on-costs should be added to the DCAGs for all units, this element being for external works, external engineering services and abnormalities etc. The abnormalities will largely be determined by the characteristics of the site, such as an inner-city location or poor ground conditions, or the condition and type of the existing building if refurbishment is the only option.

6.7 It is important that project teams should assess at the earliest opportunity all the likely on-cost implications of individual sites and schemes.

LOCATIONAL FACTORS

6.8 Locational factor adjustments may be applied to the works costs (that is, the total of the DCAGs plus established on-costs) to take into account the local market conditions. For further information regarding these, please refer to the latest regional location factors in 'Quarterly Briefing', published by NHS Estates.

FUNCTIONAL UNITS

6.9 The schedules of accommodation listed at the end of this chapter have adopted a modular approach to the planning of appropriate units to enable project teams to "pick and mix" those facilities that are required.

6.10 Using this modular approach, examples have been built up as set out in [paragraph 6.19](#). The areas given are for guide purposes only and will alter depending on the design solution. DCAGs have been calculated using the example units as a cost base.

SCHEDULES OF ACCOMMODATION

6.11 The schedules are split into three distinct elements as follows.

Schedules of space types

6.12 This lists all space types and major options covered by the document giving a range of provision, when appropriate, together with a nominal area. These are grouped by the functional use of the spaces. Further details of these spaces will be available in an updated version of Activity DataBase.

Schedules of suites/modules

6.13 This lists functional groupings of spaces. These form complete suites/modules of accommodation and can be provided either separately or as grouped accommodation with shared supporting accommodation. Suites/modules are functional associations and not physical groupings.

6.14 Accommodation solely related to any suite/module is listed under the core requirement for that suite/module, whilst accommodation that can be either provided for a particular suite/module or shared between two or more suites/modules is listed under Essential Complementary/shared Accommodation (ECA). The area allowance given may form part of a larger activity area. Where there is an option to include accommodation within a suite/module, or a major option on how that accommodation is provided, it is listed under Optional Accommodation.

6.15 These schedules include the appropriate nominal area taken from the schedule of room/space types above together with a suggestion for the number of spaces required.

6.16 Percentage allowances covering planning, engineering and circulation are also included in the totals. These percentage increases to the nominal areas are included in ECA and optional gross area allowances.

6.17 The functional groups used for this document are as follows:

- children's hospital main entrance accommodation (dedicated);
- out-patients' suite: 3 consulting/examination rooms;
- child development centre: 2 assessment rooms;
- rehabilitation unit: 2 rooms;
- day care unit: 16 beds; 16 single bed/cot/trolley spaces;
- day care unit: 16 beds; 8 single and 2 multi-bed/cot/trolley spaces;
- in-patient accommodation: 20-bed unit; 20 single bedrooms;
- in-patient accommodation: 20-bed unit; 12 single bedrooms and 2 multi-bed rooms;
- admission room for well elective in-patients;
- paediatric assessment unit for emergency patients;
- whole unit support facilities: staff accommodation;
- relatives' overnight stay accommodation: single suite;
- relatives' overnight stay accommodation: family suite.

6.18 Accommodation not covered by these schedules:

- hydrotherapy pool with changing facilities: see schedules of accommodation associated with HBN 8, 'Facilities for rehabilitation';
- pharmacy facilities: see schedules of accommodation associated with HBN 29, 'Accommodation for pharmaceutical services';
- education facilities: see the joint DfES/NHS Estates guidance 'Meeting the educational needs of children and young people in hospital' (2003);
- paediatric intensive care unit: see schedules of accommodation associated with HBN 57, 'Facilities for critical care';
- bereavement suite: see schedules of accommodation associated with HBN 20, 'Facilities for mortuary and post-mortem room services'.

Departmental examples

6.19 These schedules show example notional whole-department accommodation to highlight the scope for sharing accommodation. **The examples are not to be taken as ideal provision for any particular project.**

6.20 The examples included are as follows:

Example 1: Department comprising:

- main entrance;
- 3 consulting/examination room out-patient suite;
- 2 assessment room child development centre;
- 2 room rehabilitation unit;
- 16 single bedroom day care unit;
- 20 single bedroom in-patient accommodation;
- 1 room admission suite;
- 4 bed paediatric assessment unit;
- staff accommodation.

Example 2: Department comprising:

- main entrance;
- 3 consulting/examination room out-patient suite;
- 2 assessment room child development centre;
- 2 room rehabilitation unit;
- 8 single and 2 x 4 multi-bed room day care unit;
- 12 single and 2 x 4 multi-bed room in-patient accommodation;
- 1 room admission suite;
- 4 bed paediatric assessment unit;
- staff accommodation.

Example 3: Department comprising:

- main entrance;
- 6 consulting/examination room out-patient suite;
- 2 assessment room child development centre;
- 2 room rehabilitation unit;
- 8 single and 2 x 4 multi-bed room day care unit;
- 24 single and 2 x 4 multi-bed room in-patient accommodation;
- 1 room admission suite;
- 4 bed paediatric assessment unit;
- staff accommodation.

DIMENSIONS AND AREAS

6.21 In determining spatial requirements, the essential factor is not the total area provided but the critical dimensions, that is, those dimensions critical to the efficient functioning of the activities which are to be carried out. To assist project teams in preparing detailed design solutions for rooms and spaces, studies have been carried out to establish dimensional requirements in the form of critical dimensions. The results of these studies appear as ergonomic diagrams in Appendix 4.

6.22 For development planning and at the earliest stage of a design, it may be convenient for designers to have data available which will enable them to make an approximate assessment of the sizes involved. For this reason, the areas prepared for the purpose of establishing the costs allowances are listed in the schedules of accommodation at the end of this chapter.

6.23 It is emphasised that the areas published do not represent recommended sizes, nor are they to be regarded in any way as specific individual entitlements.

6.24 Efficient planning of the building may also necessitate variation of areas. For instance, in the refurbishment or conversion of older property:

- a. rooms tend to be larger than the recommended area;
- b. some rooms may be too small or in the wrong location for efficient use;
- c. circulation space tends to form a larger than normal proportion of the total area.

CIRCULATION

6.25 Space for circulation, that is, all internal corridors, small vertical ducts and spaces occupied by partitions and walls, is included.

6.26 Provision is also made for a 5% planning zone and a 3% addition for an engineering zone adjacent to the external walls. These areas are all included and therefore costed in the DCAGs.

6.27 It is also important to remember that the circulation figures included in the DCAGs for this type of accommodation are those anticipated for new purpose-built premises with no constraints. Where constraints are encountered, for example in refurbishment or conversion of older types of property, this circulation figure would be likely to increase accordingly, and therefore some adjustments may be necessary to the circulation figure.

COMMUNICATIONS

6.28 Staircases and lifts are not included in the DCAGs relevant to children's facilities. Costs related to these elements, along with a suitable space allowance, should be made in the on-costs.

LAND COSTS

6.29 As is the norm for DCAGs, costs are exclusive of all land costs and associated fees. However, the project team's attention is drawn to the fact that costs associated with these should be included in the business case submission, all as detailed in the Capital Investment Manual, and could therefore be an important part of the overall cost viability of the scheme.

ENGINEERING SERVICES

6.30 The following engineering services, as described in Chapter 5 and exemplified in the Activity Data, are included in the cost allowances. Primary engineering services are assumed to be conveniently available at the boundary of the department.

Mechanical services

- a. heating – low-pressure hot water system;
- b. ventilation – mechanical supply and extract to all clinical areas and areas requiring extract owing to type of room, that is, WCs, showers etc. Ventilation plant, that is, air-handling units/extract fans, are not included in the cost allowance;
- c. a share of the ventilation plant and central refrigeration is included in the cost allowance;
- d. cold water service – centrally supplied to service points including drinking water. Storage tanks are excluded;
- e. hot water service – supplied from a central system; storage and generator are excluded;
- f. piped medical gases oxygen, medical compressed air and vacuum. An emergency 2 x 1 oxygen manifold is included in the cost allowances; medical compressed air and vacuum plant are excluded. Specialist gases associated with cryosurgery are not included.

Electrical services

- a. departmental distribution boards;
- b. general lighting as required by task;
- c. examination lighting (examination lamps);
- d. emergency luminaires as appropriate;
- e. socket-outlets and other power outlets for fixed and portable equipment;
- f. supplementary equipotential earth bonding;
- g. UPS supplies and equipment;
- h. fire alarm system;
- j. TV/radio wireways only;
- k. staff/staff and patient/staff call system;
- m. telephone internal cabling distribution and outlets – handsets are excluded;
- n. data wireways only included;
- p. piped music wiring and containment equipment are excluded.

Equipment (Group 1)

- a. water boiler;
- b. linear service beams with articulated medical supply units at each bed, which incorporate medical gas and vacuum outlets together with electrical sockets and nurse call;
- c. drugs cupboards;
- d. X-ray viewers;
- e. chilled water drinks dispensers;
- f. telephone hoods;
- g. examination lamps;
- h. dishwashers;
- j. disposal units.

HOSPITAL ACCOMMODATION FOR CHILDREN AND YOUNG PEOPLE: ROOM/SPACE TYPE SCHEDULE

DH Gateway Review, Estates and Facilities Division Schedules of Accommodation Version 3.0 August 2007						
HBN 23 Hospital accommodation for children and young people (January 2005)						
E.g. 1: Hospital accommodation for children and young people comprising						
Main entrance		3 consulting/examination rooms;				
Out-patients suite		2 assessment rooms;				
Child development centre		2 rooms;				
Rehabilitation unit		16 single bedrooms				
Day care unit		20 single bedrooms				
In-patient accommodation		1 room				
Admission room		1 x 4 multi-bed room				
Paediatric assessment unit						
Staff accommodation						
Description	Quantity	Area(m2)	Total Area(m2)	HBN Para.	Notes	ADB Code
Dedicated main entrance facilities						
Car parking spaces for people with disabilities & parents with young children				Para 3.3	Dedicated to unit. External allowance	G0927
Vehicle drop-off point	1			Para 3.4	External allowance. Designated	G0910
Main entrance draught lobby	1	20.0	20.0	Para 3.4, 3.5	Includes entrance canopy area	J0108
Foyer/concourse area	1			Para 3.6, 3.9	Circulation allowance	J0151
Reception: 2 staff	1	10.0	10.0	Para 3.10		J0206
Waiting area: 15 persons including 2 wheelchair users	1	25.5	25.5	Para 3.12	Main wait	J1110
Waiting play area: 5 children	1	13.0	13.0	Para 3.18		J1403
Waiting play area: 5 young people	1	13.0	13.0	Para 3.18		J1422
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
External play area	1			Para 3.20	Associated with main entrance area. External allowance	G0935
Public telephone: single booth	2	1.5	3.0	Para 3.17, 3.21		G0702
Public telephone: single booth, accessible	2	2.0	4.0	Para 3.17, 3.21, 3.22	Standard & taxi freephone	G0705
Refreshment: drinking water dispenser	1	0.5	0.5	Para 3.14		P0810
Refreshment: vending machine	1	3.0	3.0	Para 3.14	Optional	P0805
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.17, 3.24	Visitors & patients	V0904
Nappy change room with WC & handwash, single side table access	1	7.5	7.5	Para 3.17, 3.26	See Layout Appendix 4 Sheet 4 Option 1	V1115
Infant feeding room	1	5.5	5.5	Para 3.17, 3.28	See Layout Appendix 4 Sheet 5	S0010
Parking bay: shopping, prams & pushchairs	1	12.0	12.0	Para 3.17, 3.23		G0109
Secondary entrance	1			Para 2.36, 3.7	From main acute hospital circulation. Circulation allowance. Optional	J0129
Out-patients suite						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.45	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.45		J1403
Consulting, examination & treatment room: all round couch access	3	16.0	48.0	Para 3.46	Multi-functional	C0225
Treatment room with preparation area	1	16.5	16.5	Para 3.52		X0105
Clean utility	1	14.0	14.0	Para 3.55		T0505
Dirty utility: urine test	1	9.0	9.0	Para 3.56		Y0412
WC & handwash: specimen; accessible, wheelchair	1	4.5	4.5	Para 3.58		V1406
Office: 1 staff	1	10.5	10.5	Para 3.59	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.60		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.60	En-suite to interview room	V0904
Store: bulk supplies, medical & surgical	1	12.0	12.0	Para 3.61		W1122
Child development centre						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.64	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.64		J1403
Assessment & therapy room: 5 children	2	30.0	60.0	Para 3.65		X0704
Observation & recording room: child assessment & therapy	1	11.0	11.0	Para 3.69		X0705
Dining room with beverage & snack preparation bay: 10 patients	1	18.0	18.0	Para 3.71		D0620
Dirty utility: bedpan disposal	1	9.0	9.0	Para 3.72		Y0306
Office: 1 staff	1	10.5	10.5	Para 3.73	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.74		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.74	En-suite to interview room	V0904
Store: bulk supplies	1	12.0	12.0	Para 3.75		W1580
Rehabilitation unit						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.77	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.77		J1403
Therapy room: children & young people	1	70.0	70.0	Para 3.78	Out-patients facilities	X0612
Therapy room: children & young people	1	70.0	70.0	Para 3.78	In-patients facilities	X0612
Patient changing room: 1 person	2	5.0	10.0	Para 3.78, 3.83	Incl. hoist (assisted)	V0720
Dirty utility: bedpan disposal	1	9.0	9.0	Para 3.85		Y0306
Office: 1 staff	1	10.5	10.5	Para 3.86	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.87, 3.88		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.87	En-suite to interview room	V0904
Store: bulk supplies	1	12.0	12.0	Para 3.89		W1580
Shared facilities between out-patient suite, child development centre & rehabilitation unit						
Waiting area: 30 persons including 3 wheelchair users	1	49.5	49.5	Para 3.33	Main waiting	J1111
Waiting play area: 10 children	1	18.0	18.0	Para 3.33		J1410
Waiting play area: 10 young people	1	18.0	18.0	Para 3.33		J1423
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16	Optional	J1211
Public telephone: single booth	1	1.5	1.5	Para 3.33		G0702
Public telephone: single booth, accessible	1	2.0	2.0	Para 3.33		G0705
Nappy change room with WC & handwash, single side table access	1	7.5	7.5	Para 3.33	See Layout Appendix 4 Sheet 4 Option 1	V1115
Infant feeding room	1	5.5	5.5	Para 3.33	See Layout Appendix 4 Sheet 5	S0010
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.33	Visitors & patients	V0904
Refreshment: drinking water dispenser	1	0.5	0.5	Para 3.33		P0810
Hold: disposal	1	10.0	10.0	Para 3.34		Y0614
Cleaners (Housekeeping) room	1	7.0	7.0	Para 3.38		Y1501
Switchgear room	1	4.0	4.0	Para 3.41		K0101
UPS room	1	4.0	4.0	Para 5.88		K0116
Day care unit						
Reception: 2 staff	1	10.0	10.0	Para 3.100		J0206
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.100	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.100		J1403
Single bedroom: Children/young people day care	16	14.5	232.0	Para 3.108		B1811
Shower, WC & wash: accessible, wheelchair assisted	16	6.0	96.0	Para 3.96	En-suite to bedroom	V1625
Staff & communication base, enclosed: 2 staff	1	11.0	11.0	Para 3.103		T0202
Treatment room: child	1	16.5	16.5	Para 3.127		X0214
Clean utility	1	14.0	14.0	Para 3.106		T0505
Store: linen	1	6.0	6.0	Para 3.106	Top-up linen system	W1592
Parking bay: resuscitation trolley	1	1.0	1.0	Para 3.106		G0103
Dirty utility: urine test	1	9.0	9.0	Para 3.125		Y0412
WC & handwash: ambulant	2	2.0	4.0	Para 3.134	Staff wc	V1007
Store: bulk supplies, medical & surgical	1	12.0	12.0	Para 3.126		W1122
Office: 1 staff	1	10.5	10.5	Para 3.101	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.102		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.102	En-suite to interview room	V0904
In-patient facilities						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.140	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.140		J1403
Single bedroom: Children/young people, with relatives overnight stay	18	15.0	270.0	Para 3.141	Includes parental facilities. See Layout Appendix 4 sheets 1 & 2	B1802
Isolation single bedroom: Children/young people, with relatives overnight stay	2	15.0	30.0	Para 3.143	Includes parental facilities	B1805
Lobby: air lock to bedroom	2	4.0	8.0	Para 3.143	To isolation bedroom	G0507

Shower, WC & wash: accessible, wheelchair assisted	20	6.0	120.0	Para 3.142	En-suite to single bedroom. See Layout Appendix 4 Sheet 1	V1625
Bath, WC & wash: treatment, assisted	1	14.0	14.0	Para 3.149		V1714
WC dual access & handwash: accessible, wheelchair assisted	1	5.5	5.5	Para 3.154		V1214
Treatment room: child	1	16.5	16.5	Para 3.158		X0214
Clean utility	1	14.0	14.0	Para 3.160		T0505
Parking bay: resuscitation trolley	1	1.0	1.0	Para 3.160		G0103
Dirty utility: bedpan disposal & urine test	1	12.0	12.0	Para 3.161		Y0302
Near patient testing/status laboratory	1	8.5	8.5	Para 3.163, 3.214		L1305
Staff & communication base, enclosed: 2 staff	1	11.0	11.0	Para 3.165		T0202
Office: 1 staff	1	10.5	10.5	Para 3.166	Administration staff	M0206
WC & handwash: ambulant	2	2.0	4.0	Para 3.167	Staff wc	V1007
Dining room: 15 patients	1	25.0	25.0	Para 3.168	One space divided into several smaller areas	D0615
Playroom: 10 children	1	30.0	30.0	Para 3.171		D0815
External play area including covered area	1			Para 3.177	External allowance	G0936
Recreation room with beverage & snack preparation bay: 10 teenagers	1	39.0	39.0	Para 3.180		D1119
Study & quiet room: 5 patients	1	18.0	18.0	Para 3.183		H0335
Pamper room	1	18.0	18.0	Para 3.184	Hairdressing, beauty & complementary therapies	X0710
Happy/calming room	1	12.0	12.0	Para 3.186		X0712
Snoezelen room	1	12.0	12.0	Para 3.192		X0714
Pantry: serving ward	1	12.0	12.0	Para 3.194		P0607
Use of breast pump room	1	5.0	5.0	Para 3.203		P1006
Store: linen	1	6.0	6.0	Para 3.204		W1592
Store: clothing back-up	1	6.0	6.0	Para 3.205		W1408
Store: general	1	12.0	12.0	Para 3.207		W1549
Store: equipment	1	30.0	30.0	Para 3.208	Large equipment - beds, etc.	W1420
Parking bay: mobile x-ray & ultrasound unit	1	5.0	5.0	Para 3.224		G0142
Rest & quiet room with beverage & snack preparation bay: family	1	12.0	12.0	Para 3.217		D1408
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.217	En-suite to family rest room	V0904
Sitting room with beverage & snack preparation bay: 10 visitors	1	18.0	18.0	Para 3.218		D1410
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.218	En-suite to sitting room	V0904
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.219		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.220	En-suite to interview room	V0904
Dispenser bay: entertainment card	1	2.0	2.0	Para 3.144		G0821
Switchgear room: entertainment/communication system	1	5.0	5.0	Para 3.144		K0121
Admission room for well elective in-patients						
Admission & examination room	1	13.5	13.5	Para 3.215		C0301
Paediatric assessment unit facilities for emergency patients						
Multi-bed room: Paediatric assessment, 4 beds	1	66.0	66.0	Para 3.212		B2015
Shared facilities between day care unit, in-patient accommodation & paediatric assessment unit						
Waiting area: 15 persons including 2 wheelchair users	1	25.5	25.5	Para 3.93	Main wait	J1110
Waiting play area: 5 children	1	13.0	13.0	Para 3.93		J1403
Waiting play area: 5 young people	1	13.0	13.0	Para 3.93		J1422
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
WC & handwash: semi ambulant	2	2.5	5.0	Para 3.93	Visitors & patients	V1106
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.93	Visitors & patients	V0904
Nappy change room with WC & handwash, both sides table access	1	10.0	10.0	Para 3.93	See Layout Appendix 4 Sheet 2 Option 2	V1117
Infant feeding room	1	5.5	5.5	Para 3.93	See Layout Appendix 4 Sheet 5	S0010
Hold: disposal	1	10.0	10.0	Para 3.93		Y0614
Cleaners (Housekeeping) room	1	7.0	7.0	Para 3.93		Y1501
Switchgear room	1	4.0	4.0	Para 3.93		K0101
UPS room	1	4.0	4.0	Para 5.88		K0116
Staff support facilities: Whole unit						
Rest room with beverage & snack preparation bay: 20 staff	1	28.0	28.0	Para 3.239		D0207
Staff changing room: 20 places	1	11.5	11.5	Para 3.243		V0512
Staff changing room: 40 places	1	20.0	20.0	Para 3.243		V0520
Shower: ambulant (non patient)	4	2.5	10.0	Para 3.243	Staff shower	V0801
WC & wash: ambulant	4	2.0	8.0	Para 3.243	Staff wc	V1005
Seminar & training room: 20 persons	1	37.5	37.5	Para 3.247		H0513
Office: 1 staff	1	10.5	10.5	Para 3.249	Clinical director	M0219
Office: 1 staff	1	10.5	10.5	Para 3.249	Manager	M0219
Office: 4 staff	1	24.0	24.0	Para 3.249	Clinical staff	M1014
Office: 4 staff	1	24.0	24.0	Para 3.249	Administration staff	M1014
Office: 2 staff	1	13.0	13.0	Para 3.249	Outreach staff	M1002
Office: 2 staff	1	13.0	13.0	Para 3.249	Teaching & research staff	M1002
Interview/meeting room: 6 persons	1	14.0	14.0	Para 3.253		M0713
Net Allowance			2535.5			
5% Planning Allowance			126.8			
Total			2662.3			
3% Engineering Allowance			79.9			
30% Circulation Allowance			798.7			
Total Allowance			3540.8			
Optional accommodation						
Dispenser bay: car park ticket	1	10.0	10.0			G0826
Waiting area: 5 persons including 1 wheelchair user	1	9.0	9.0			J1204
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
Linen bay: exchange trolley	1	2.5	2.5	Para 3.204		W1426
Store: linen & clothing back-up	1	9.0	9.0	Para 3.206		W1428
Feed preparation room & baby food store	1	7.0	7.0	Para 3.201		P1002
Parking bay: mobile x-ray, image intensifier & ultrasound unit	1	8.0	8.0	Para 3.224		G0143
Day/overnight room: single bedroom, relatives	1	11.0	11.0	Para 2.117		D1302
Day/overnight room: double bedroom, relatives	1	12.0	12.0	Para 2.117		D1304
Sitting room: 5 relatives	1	10.0	10.0	Para 2.117		D1405
Shower, WC & wash: ambulant (non patient)	1	5.0	5.0	Para 2.117		V1301

DH Gateway Review, Estates and Facilities Division Schedules of Accommodation Version 3.0 August 2007						
HBN 23 Hospital accommodation for children and young people (January 2005)						
E.g. 2: Hospital accommodation for children and young people comprising						
Main entrance Out-patients suite Child development centre Rehabilitation unit Day care unit In-patient accommodation Admission room Paediatric assessment unit Staff accommodation				3 consulting/examination rooms; 2 assessment rooms; 2 rooms; 8 single bedrooms & 2 x 4 multi-bed rooms 12 single bedrooms & 2 x 4 multi-bed rooms 1 room 1 x 4 multi-bed room		
Description	Quantity	Area(m2)	Total Area(m2)	HBN Para.	Notes	ADB Code
Dedicated main entrance facilities						
Car parking spaces for people with disabilities & parents with young children				Para 3.3	External allowance	G0927
Vehicle drop-off point	1			Para 3.4	External allowance. Designated	G0910
Main entrance draught lobby	1	20.0	20.0	Para 3.4, 3.5	Includes entrance canopy area	J0108
Foyer/concourse area	1			Para 3.6, 3.9	Circulation allowance	J0151
Reception: 2 staff	1	10.0	10.0	Para 3.10		J0206
Waiting area: 15 persons including 2 wheelchair users	1	25.5	25.5	Para 3.12	Main wait	J1110
Waiting play area: 5 children	1	13.0	13.0	Para 3.18		J1403
Waiting play area: 5 young people	1	13.0	13.0	Para 3.18		J1422
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
External play area	1			Para 3.20	Associated with main entrance area. External allowance	G0935
Public telephone: single booth	2	1.5	3.0	Para 3.17, 3.21		G0702
Public telephone: single booth, accessible	2	2.0	4.0	Para 3.17, 3.21, 3.22	Standard & taxi freephone	G0705
Refreshment: drinking water dispenser	1	0.5	0.5	Para 3.14		P0810
Refreshment: vending machine	1	3.0	3.0	Para 3.14	Optional	P0805
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.17, 3.24	Visitors & patients	V0904
Nappy change room with WC & handwash, single side table access	1	7.5	7.5	Para 3.17, 3.26	See Layout Appendix 4 Sheet 4 Option 1	V1115
Infant feeding room	1	5.5	5.5	Para 3.17, 3.28	See Layout Appendix 4 Sheet 5	S0010
Parking bay: shopping, prams & pushchairs	1	12.0	12.0	Para 3.17, 3.23		G0109
Secondary entrance	1			Para 2.36, 3.7	From main acute hospital circulation. Circulation allowance. Optional	J0129
Out-patients suite						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.45	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.45		J1403
Consulting, examination & treatment room: all round couch access	3	16.0	48.0	Para 3.46	Multi-functional	C0225
Treatment room with preparation area	1	16.5	16.5	Para 3.52		X0105
Clean utility	1	14.0	14.0	Para 3.55		T0505
Dirty utility: urine test	1	9.0	9.0	Para 3.56		Y0412
WC & handwash: specimen; accessible, wheelchair	1	4.5	4.5	Para 3.58		V1406
Office: 1 staff	1	10.5	10.5	Para 3.59	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.60		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.60	En-suite to interview room	V0904
Store: bulk supplies, medical & surgical	1	12.0	12.0	Para 3.61		W1122
Child development centre						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.64	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.64		J1403
Assessment & therapy room: 5 children	2	30.0	60.0	Para 3.65		X0704
Observation & recording room: child assessment & therapy	1	11.0	11.0	Para 3.69		X0705
Dining room with beverage & snack preparation bay: 10 patients	1	18.0	18.0	Para 3.71		D0620
Dirty utility: bedpan disposal	1	9.0	9.0	Para 3.72		Y0306
Office: 1 staff	1	10.5	10.5	Para 3.73	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.74		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.74	En-suite to interview room	V0904
Store: bulk supplies	1	12.0	12.0	Para 3.75		W1580
Rehabilitation unit						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.77	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.77		J1403
Therapy room: children & young people	1	70.0	70.0	Para 3.78	Out-patient facilities	X0612
Therapy room: children & young people	1	70.0	70.0	Para 3.78	In-patient facilities	X0612
Patient changing room: 1 person	2	5.0	10.0	Para 3.78, 3.83	Incl. hoist (assisted)	V0720
Dirty utility: bedpan disposal	1	9.0	9.0	Para 3.85		Y0306
Office: 1 staff	1	10.5	10.5	Para 3.86	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.87, 3.88		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.87	En-suite to interview room	V0904
Store: bulk supplies	1	12.0	12.0	Para 3.89		W1580
Shared facilities between out-patient suite, child development centre & rehabilitation unit						
Waiting area: 30 persons including 3 wheelchair users	1	49.5	49.5	Para 3.33	Main waiting	J1111
Waiting play area: 10 children	1	18.0	18.0	Para 3.33		J1410
Waiting play area: 10 young people	1	18.0	18.0	Para 3.33		J1423
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16	Optional	J1211
Public telephone: single booth	1	1.5	1.5	Para 3.33		G0702
Public telephone: single booth, accessible	1	2.0	2.0	Para 3.33		G0705
Nappy change room with WC & handwash, single side table access	1	7.5	7.5	Para 3.33	See Layout Appendix 4 Sheet 4 Option 1	V1115
Infant feeding room	1	5.5	5.5	Para 3.33	See Layout Appendix 4 Sheet 5	S0010
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.33	Visitors & patients	V0904
Refreshment: drinking water dispenser	1	0.5	0.5	Para 3.33		P0810
Hold: disposal	1	10.0	10.0	Para 3.34		Y0614
Cleaners (Housekeeping) room	1	7.0	7.0	Para 3.38		Y1501
Switchgear room	1	4.0	4.0	Para 3.41		K0101
UPS room	1	4.0	4.0	Para 5.88		K0116
Day care unit						
Reception: 2 staff	1	10.0	10.0	Para 3.100		J0206
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.100	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.100		J1403
Single bedroom: Children/young people day care	8	14.5	116.0	Para 3.108		B1811
Shower, WC & wash: accessible, wheelchair assisted	8	6.0	48.0	Para 3.96	En-suite to bedroom	V1625
Multi-bed room: Children/young peoples day care, 4 beds	2	66.0	132.0	Para 3.108, 3.117		B2011
Shower, WC & wash: accessible, wheelchair assisted	2	7.0	14.0	Para 3.121	En-suite to multi-bedroom	V1627
Staff & communication base, enclosed: 2 staff	1	11.0	11.0	Para 3.103		T0202
Treatment room: child	1	16.5	16.5	Para 3.127		X0214
Clean utility	1	14.0	14.0	Para 3.106		T0505
Store: linen	1	6.0	6.0	Para 3.106	Top-up linen system	W1592
Parking bay: resuscitation trolley	1	1.0	1.0	Para 3.106		G0163
Dirty utility: urine test	1	9.0	9.0	Para 3.125		Y0412
WC & handwash: ambulant	2	2.0	4.0	Para 3.134	Staff wc	W1007
Store: bulk supplies, medical & surgical	1	12.0	12.0	Para 3.126		W1122
Office: 1 staff	1	10.5	10.5	Para 3.101	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.102		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.102	En-suite to interview room	V0904
In-patient facilities						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.140	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.140		J1403
Single bedroom: Children/young people, with relatives overnight stay	10	15.0	150.0	Para 3.141	Includes parental facilities. See Layout Appendix 4 Sheets 1 & 2	B1802
Isolation single bedroom: Children/young people, with relatives overnight stay	2	15.0	30.0	Para 3.143	Includes parental facilities	B1805

Lobby: air lock to bedroom	2	4.0	8.0	Para 3.143	To isolation bedroom	G0507
Shower, WC & wash: accessible, wheelchair assisted	12	6.0	72.0	Para 3.142	En-suite to single bedroom. See layout Appendix 4 Sheet 1	V1625
Multi-bed room & day space: Children/young people, 4 beds, with relatives overnight stay	2	80.0	160.0	Para 3.147	See Layout Appendix 4 Sheet 3	B2001
Shower, WC & wash: accessible, wheelchair assisted	2	7.0	14.0	Para 3.142	En-suite to multi-bedroom. See Layout Appendix 4 Sheet 3	V1627
Bath, WC & wash: treatment, assisted	1	14.0	14.0	Para 3.149		V1714
WC dual access & handwash: accessible, wheelchair assisted	1	5.5	5.5	Para 3.154		V1214
Treatment room: child	1	16.5	16.5	Para 3.158		X0214
Clean utility	1	14.0	14.0	Para 3.160		T0505
Parking bay: resuscitation trolley	1	1.0	1.0	Para 3.160		G0103
Dirty utility: bedpan disposal & urine test	1	12.0	12.0	Para 3.161		Y0302
Near patient testing/status laboratory	1	8.5	8.5	Para 3.163, 3.214		L1305
Staff & communication base, enclosed: 2 staff	1	11.0	11.0	Para 3.165		T0202
Office: 1 staff	1	10.5	10.5	Para 3.166	Administration staff	M0206
WC & handwash: ambulant	2	2.0	4.0	Para 3.167	Staff wc	V1007
Dining room: 15 patients	1	25.0	25.0	Para 3.168	One space divided into several smaller areas	D0615
Playroom: 10 children	1	30.0	30.0	Para 3.171		D0815
External play area including covered area	1			Para 3.177	External allowance	G0936
Recreation room with beverage & snack preparation bay: 10 teenagers	1	39.0	39.0	Para 3.180		D1119
Study & quiet room: 5 patients	1	18.0	18.0	Para 3.183		H0335
Pamper room	1	18.0	18.0	Para 3.184	Hairdressing, beauty & complementary therapies	X0710
Happy/calming room	1	12.0	12.0	Para 3.186		X0712
Snoezelen room	1	12.0	12.0	Para 3.192		X0714
Pantry: serving ward	1	12.0	12.0	Para 3.194		P0607
Use of breast pump room	1	5.0	5.0	Para 3.203		P1006
Store: linen	1	6.0	6.0	Para 3.204		W1592
Store: clothing back-up	1	6.0	6.0	Para 3.205		W1408
Store: general	1	12.0	12.0	Para 3.207		W1549
Store: equipment	1	30.0	30.0	Para 3.208	Large equipment - beds, etc.	W1420
Parking bay: mobile x-ray & ultrasound unit	1	5.0	5.0	Para 3.224		G0142
Rest & quiet room with beverage & snack preparation bay: family	1	12.0	12.0	Para 3.217		D1408
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.217	En-suite to family rest room	V0904
Sitting room with beverage & snack preparation bay: 10 visitors	1	18.0	18.0	Para 3.218		D1410
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.218	En-suite to sitting room	V0904
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.219		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.220	En-suite to interview room	V0904
Dispenser bay: entertainment card	1	2.0	2.0	Para 3.144		G0821
Switchgear room: entertainment/communication system	1	5.0	5.0	Para 3.144		K0121
Admission room for well elective in-patients						
Admission & examination room	1	13.5	13.5	Para 3.215		C0301
Paediatric assessment unit facilities for emergency patients						
Multi-bed room: Paediatric assessment, 4 beds	1	66.0	66.0	Para 3.212		B2015
Shared facilities between day care unit, in-patient accommodation & paediatric assessment unit						
Waiting area: 15 persons including 2 wheelchair users	1	25.5	25.5	Para 3.93	Main wait	J1110
Waiting play area: 5 children	1	13.0	13.0	Para 3.93		J1403
Waiting play area: 5 young people	1	13.0	13.0	Para 3.93		J1422
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
WC & handwash: semi ambulant	2	2.5	5.0	Para 3.93	Visitors & patients	V1106
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.93	Visitors & patients	V0904
Nappy change room with WC & handwash, both sides table access	1	10.0	10.0	Para 3.93	See Layout Appendix 4 Sheet 4 Option 2	V1117
Infant feeding room	1	5.5	5.5	Para 3.93	See layout Appendix Sheet 5	S0010
Hold: disposal	1	10.0	10.0	Para 3.93		Y0614
Cleaners (Housekeeping) room	1	7.0	7.0	Para 3.93		Y1501
Switchgear room	1	4.0	4.0	Para 3.93		K0101
UPS room	1	4.0	4.0	Para 5.88		K0116
Staff support facilities: Whole unit						
Rest room with beverage & snack preparation bay: 20 staff	1	28.0	28.0	Para 3.239		D0207
Staff changing room: 20 places	1	11.5	11.5	Para 3.243		V0512
Staff changing room: 40 places	1	20.0	20.0	Para 3.243		V0520
Shower: ambulant (non patient)	4	2.5	10.0	Para 3.243	Staff shower	V0801
WC & wash: ambulant	4	2.0	8.0	Para 3.243	Staff wc	V1005
Seminar & training room: 20 persons	1	37.5	37.5	Para 3.247		H0513
Office: 1 staff	1	10.5	10.5	Para 3.249	Clinical director	M0219
Office: 1 staff	1	10.5	10.5	Para 3.249	Manager	M0219
Office: 4 staff	1	24.0	24.0	Para 3.249	Clinical staff	M1014
Office: 4 staff	1	24.0	24.0	Para 3.249	Administration staff	M1014
Office: 2 staff	1	13.0	13.0	Para 3.249	Outreach staff	M1002
Office: 2 staff	1	13.0	13.0	Para 3.249	Teaching & research staff	M1002
Interview/meeting room: 6 persons	1	14.0	14.0	Para 3.253		M0713
Net Allowance			2523.5			
5% Planning Allowance			126.2			
Total			2649.7			
3% Engineering Allowance			79.5			
30% Circulation Allowance			794.9			
Total Allowance			3524.1			
Optional accommodation						
Dispenser bay: car park ticket	1	10.0	10.0			G0826
Waiting area: 5 persons including 1 wheelchair user	1	9.0	9.0			J1204
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
Linen bay: exchange trolley	1	2.5	2.5	Para 3.204		W1426
Store: linen & clothing back-up	1	9.0	9.0	Para 3.206		W1428
Feed preparation room & baby food store	1	7.0	7.0	Para 3.201		P1002
Parking bay: mobile x-ray, image intensifier & ultrasound unit	1	8.0	8.0	Para 3.224		G0143
Day/overnight room: single bedroom, relatives	1	11.0	11.0	Para 2.117		D1302
Day/overnight room: double bedroom, relatives	1	12.0	12.0	Para 2.117		D1304
Sitting room: 5 relatives	1	10.0	10.0	Para 2.117		D1405
Shower, WC & wash: ambulant (non patient)	1	5.0	5.0	Para 2.117		V1301

DH Gateway Review, Estates and Facilities Division Schedules of Accommodation Version 3.0 August 2007						
HBN 23 Hospital accommodation for children and young people (January 2005)						
E.g. 3: Hospital accommodation for children and young people comprising						
Main entrance Out-patients suite Child development centre Rehabilitation unit Day care unit In-patient accommodation Admission room Paediatric assessment unit Staff accommodation				6 consulting/examination rooms; 2 assessment rooms; 2 rooms; 8 single bedrooms & 2 x 4 multi-bed rooms 24 single bedrooms & 4 x 4 multi-bed rooms 1 room 1 x 4 multi-bed room		
Description	Quantity	Area(m2)	Total Area(m2)	HBN Para.	Notes	ADB Code
Dedicated main entrance facilities						
Car parking spaces for people with disabilities & parents with young children				Para 3.3	Dedicated to unit. External allowance	G0927
Vehicle drop-off point	1			Para 3.4	External allowance. Designated	G0910
Main entrance draught lobby	1	20.0	20.0	Para 3.4, 3.5	Includes entrance canopy area	J0108
Foyer/concourse area	1			Para 3.6, 3.9	Circulation allowance	J0151
Reception: 2 staff	1	10.0	10.0	Para 3.10		J0206
Waiting area: 20 persons including 2 wheelchair users	1	33.0	33.0	Para 3.12	Main wait	J1109
Waiting play area: 5 children	1	13.0	13.0	Para 3.18		J1403
Waiting play area: 5 young people	1	13.0	13.0	Para 3.18		J1422
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
External play area	1			Para 3.20	Associated with main entrance area. External allowance	G0935
Public telephone: single booth	2	1.5	3.0	Para 3.17, 3.21		G0702
Public telephone: single booth, accessible	2	2.0	4.0	Para 3.17, 3.21, 3.22	Standard & taxi freephone	G0705
Refreshment: drinking water dispenser	1	0.5	0.5	Para 3.14		P0810
Refreshment: vending machine	1	3.0	3.0	Para 3.14	Optional	P0805
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.17, 3.24	Visitors & patients	V0904
Nappy change room with WC & handwash, single side table access	1	7.5	7.5	Para 3.17, 3.26	See Layout Appendix 4 Sheet 4 Option 1	V1115
Infant feeding room	1	5.5	5.5	Para 3.17, 3.28	See Layout Appendix 4 Sheet 5	S0010
Parking bay: shopping, prams & pushchairs	1	12.0	12.0	Para 3.17, 3.23		G0109
Secondary entrance	1			Para 2.36, 3.7	From main acute hospital circulation. Circulation allowance. Optional	J0129
Out-patients suite						
Waiting area: 20 persons including 2 wheelchair users	1	33.0	33.0	Para 3.45	Sub-wait	J1109
Waiting play area: 10 children	1	18.0	18.0	Para 3.45		J1410
Consulting, examination & treatment room: all round couch access	6	16.0	96.0	Para 3.46	Multi-functional	C0225
Treatment room with preparation area	1	16.5	16.5	Para 3.52		X0105
Clean utility	1	14.0	14.0	Para 3.55		T0505
Dirty utility: urine test	1	12.0	12.0	Para 3.56		Y0411
WC & handwash: specimen; accessible, wheelchair	1	4.5	4.5	Para 3.58		V1406
Office: 1 staff	1	10.5	10.5	Para 3.59	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.60		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.60	En-suite to interview room	V0904
Store: bulk supplies, medical & surgical	1	18.0	18.0	Para 3.61		W1123
Child development centre						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.64	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.64		J1403
Assessment & therapy room: 5 children	2	30.0	60.0	Para 3.65		X0704
Observation & recording room: child assessment & therapy	1	11.0	11.0	Para 3.69		X0705
Dining room with beverage & snack preparation bay: 10 patients	1	18.0	18.0	Para 3.71		D0620
Dirty utility: bedpan disposal	1	9.0	9.0	Para 3.72		Y0306
Office: 1 staff	1	10.5	10.5	Para 3.73	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.74		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.74	En-suite to interview room	V0904
Store: bulk supplies	1	12.0	12.0	Para 3.75		W1580
Rehabilitation unit						
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.77	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.77		J1403
Therapy room: children & young people	1	70.0	70.0	Para 3.78	Out-patients facilities	X0612
Therapy room: children & young people	1	70.0	70.0	Para 3.78	In-patients facilities	X0612
Patient changing room: 1 person	2	5.0	10.0	Para 3.78, 3.83	Incl. hoist (assisted)	V0720
Dirty utility: bedpan disposal	1	9.0	9.0	Para 3.85		Y0306
Office: 1 staff	1	10.5	10.5	Para 3.86	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.87, 3.88		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.87	En-suite to interview room	V0904
Store: bulk supplies	1	12.0	12.0	Para 3.89		W1580
Shared facilities between out-patient suite, child development centre & rehabilitation unit						
Waiting area: 30 persons including 3 wheelchair users	1	49.5	49.5	Para 3.33	Main waiting	J1111
Waiting play area: 10 children	1	18.0	18.0	Para 3.33		J1410
Waiting play area: 10 young people	1	18.0	18.0	Para 3.33		J1423
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16	Optional	J1211
Public telephone: single booth	1	1.5	1.5	Para 3.33		G0702
Public telephone: single booth, accessible	1	2.0	2.0	Para 3.33		G0705
Nappy change room with WC & handwash, single side table access	1	7.5	7.5	Para 3.33	See Layout Appendix 4 Sheet 4 Optional 1	V1115
Infant feeding room	1	5.5	5.5	Para 3.33	See Layout Appendix 4 Sheet 5	S0010
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.33	Visitors & patients	V0904
Refreshment: drinking water dispenser	1	0.5	0.5	Para 3.33		P0810
Hold: disposal	1	10.0	10.0	Para 3.34		Y0614
Cleaners (Housekeeping) room	1	7.0	7.0	Para 3.38		Y1501
Switchgear room	1	4.0	4.0	Para 3.41		K0101
UPS room	1	4.0	4.0	Para 5.88		K0116
Day care unit						
Reception: 2 staff	1	10.0	10.0	Para 3.100		J0206
Waiting area: 10 persons including 1 wheelchair user	1	16.5	16.5	Para 3.100	Sub-wait	J1201
Waiting play area: 5 children	1	13.0	13.0	Para 3.100		J1403
Single bedroom: Children/young people day care	8	14.5	116.0	Para 3.108		B1811
Shower, WC & wash: accessible, wheelchair assisted	8	6.0	48.0	Para 3.96	En-suite to bedroom	V1625
Multi-bed room: Children/young people day care, 4 beds	2	66.0	132.0	Para 3.108, 3.117		B2011
Shower, WC & wash: accessible, wheelchair assisted	2	7.0	14.0	Para 3.121	En-suite to multi-bedroom	V1627
Staff & communication base, enclosed: 2 staff	1	11.0	11.0	Para 3.103		T0202
Treatment room: child	1	16.5	16.5	Para 3.127		X0214
Clean utility	1	14.0	14.0	Para 3.106		T0505
Store: linen	1	6.0	6.0	Para 3.106	Top-up linen system	W1592
Parking bay: resuscitation trolley	1	1.0	1.0	Para 3.106		G0163
Dirty utility: urine test	1	9.0	9.0	Para 3.125		Y0412
WC & handwash: ambulant	2	2.0	4.0	Para 3.134	Staff wc	V1007
Store: bulk supplies, medical & surgical	1	12.0	12.0	Para 3.126		W1122
Office: 1 staff	1	10.5	10.5	Para 3.101	Administration staff	M0206
Interview & counselling room: 5 persons	1	9.0	9.0	Para 3.102		M0704
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	Para 3.102	En-suite to interview room	V0904
In-patient facilities						
Waiting area: 10 persons including 1 wheelchair user	2	16.5	33.0	Para 3.140	Sub-wait	J1201
Waiting play area: 5 children	2	13.0	26.0	Para 3.140		J1403
Single bedroom: Children/young people, with relatives overnight stay	20	15.0	300.0	Para 3.141	Includes parental facilities. See Layout Appendix 4 Sheets 1 & 2	B1802

Isolation single bedroom: Children/young people, with relatives overnight stay	4	15.0	60.0	Para 3.143	Includes parental facilities	B1805
Lobby: air lock to bedroom	4	4.0	16.0	Para 3.143	To isolation bedroom	G0507
Shower, WC & wash: accessible, wheelchair assisted	24	6.0	144.0	Para 3.142	En-suite to single bedroom. See Layout Appendix 4 Sheet 1	V1625
Multi-bed room & day space: Children/young people, 4 beds, with relatives overnight stay	4	80.0	320.0	Para 3.147	See Layout Appendix 4 Sheet 3	B2001
Shower, WC & wash: accessible, wheelchair assisted	4	7.0	28.0	Para 3.142	En-suite to multi-bedroom. See Layout Appendix 4 Sheet 3	V1627
Bath, WC & wash: treatment, assisted	2	14.0	28.0	Para 3.149		V1714
WC dual access & handwash: accessible, wheelchair assisted	2	5.5	11.0	Para 3.154		V1214
Treatment room: child	2	16.5	33.0	Para 3.158		X0214
Clean utility	2	14.0	28.0	Para 3.160		T0505
Parking bay: resuscitation trolley	2	1.0	2.0	Para 3.160		G0103
Dirty utility: bedpan disposal & urine test	2	12.0	24.0	Para 3.161		Y0302
Near patient testing/status laboratory	1	8.5	8.5	Para 3.163, 3.214		L1305
Staff & communication base, enclosed: 2 staff	2	11.0	22.0	Para 3.165		T0202
Office: 1 staff	2	10.5	21.0	Para 3.166	Administration staff	M0206
WC & handwash: ambulant	4	2.0	8.0	Para 3.167	Staff wc	V1007
Dining room: 15 patients	2	25.0	50.0	Para 3.168	One space divided into several smaller areas	D0615
Playroom: 10 children	1	30.0	30.0	Para 3.171		D0815
External play area including covered area	1			Para 3.177	External allowance	G0936
Recreation room with beverage & snack preparation bay: 10 teenagers	1	39.0	39.0	Para 3.180		D1119
Study & quiet room: 5 patients	2	18.0	36.0	Para 3.183		H0335
Pamper room	1	18.0	18.0	Para 3.184	Hairdressing, beauty & complementary therapies	X0710
Happy/calming room	1	12.0	12.0	Para 3.186		X0712
Snoezelen room	1	12.0	12.0	Para 3.192		X0714
Pantry: serving ward	2	12.0	24.0	Para 3.194		P0607
Feed preparation room & baby food store	1	7.0	7.0	Para 3.201	Optional	P1002
Use of breast pump room	1	5.0	5.0	Para 3.203		P1006
Store: linen	2	6.0	12.0	Para 3.204		W1592
Store: clothing back-up	2	6.0	12.0	Para 3.205		W1408
Store: general	2	12.0	24.0	Para 3.207		W1549
Store: equipment	2	30.0	60.0	Para 3.208	Large equipment - beds, etc.	W1420
Parking bay: mobile x-ray & ultrasound unit	1	5.0	5.0	Para 3.224		G0142
Rest & quiet room with beverage & snack preparation bay: family	2	12.0	24.0	Para 3.217		D1408
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.217	En-suite to family rest room	V0904
Sitting room with beverage & snack preparation bay: 10 visitors	2	18.0	36.0	Para 3.218		D1410
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.218	En-suite to sitting room	V0904
Interview & counselling room: 5 persons	2	9.0	18.0	Para 3.219		M0704
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.220	En-suite to interview room	V0904
Dispenser bay: entertainment card	2	2.0	4.0	Para 3.144		G0821
Switchgear room: entertainment/communication system	1	5.0	5.0	Para 3.144		K0121
Admission room for well elective in-patients						
Admission & examination room	1	13.5	13.5	Para 3.215		C0301
Paediatric assessment unit facilities for emergency patients						
Multi-bed room: Paediatric assessment, 4 beds	1	66.0	66.0	Para 3.212		B2015
Shared facilities between day care unit, in-patient accommodation & paediatric assessment unit						
Waiting area: 25 persons including 2 wheelchair users	1	40.5	40.5	Para 3.93	Main wait	J1116
Waiting play area: 10 children	1	18.0	18.0	Para 3.93		J1410
Waiting play area: 10 young people	1	18.0	18.0	Para 3.93		J1423
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
WC & handwash: semi ambulant	4	2.5	10.0	Para 3.93	Visitors & patients	V1106
WC & handwash: accessible, wheelchair assisted	2	4.5	9.0	Para 3.93	Visitors & patients	V0904
Nappy change room with WC & handwash, both sides table access	1	10.0	10.0	Para 3.93	See Layout Appendix 4 Sheet 4 Option 2	V1117
Infant feeding room	1	5.5	5.5	Para 3.93	See Layout Appendix 4 Sheet 5	S0010
Hold: disposal	1	15.0	15.0	Para 3.93		Y0615
Cleaners (Housekeeping) room	2	7.0	14.0	Para 3.93		Y1501
Switchgear room	1	4.0	4.0	Para 3.93		K0101
UPS room	1	4.0	4.0	Para 5.88		K0116
Staff support facilities: Whole unit						
Rest room with beverage & snack preparation bay: 30 staff	1	45.0	45.0	Para 3.239		D0202
Staff changing room: 30 places	1	16.0	16.0	Para 3.243		V0517
Staff changing room: 50 places	1	25.0	25.0	Para 3.243		V0515
Shower: ambulant (non patient)	4	2.5	10.0	Para 3.243	Staff shower	V0801
WC & wash: ambulant	6	2.0	12.0	Para 3.243	Staff wc	V1005
Seminar & training room: 30 persons	1	55.0	55.0	Para 3.247		H0517
Office: 1 staff	1	10.5	10.5	Para 3.249	Clinical director	M0219
Office: 1 staff	1	10.5	10.5	Para 3.249	Manager	M0219
Office: 6 staff	1	36.0	36.0	Para 3.249	Clinical staff	M1011
Office: 6 staff	1	36.0	36.0	Para 3.249	Administration staff	M1011
Office: 2 staff	1	13.0	13.0	Para 3.249	Outreach staff	M1002
Office: 2 staff	1	13.0	13.0	Para 3.249	Teaching & research staff	M1002
Interview/meeting room: 6 persons	1	14.0	14.0	Para 3.253		M0713
Net Allowance			3450.5			
5% Planning Allowance			172.5			
Total			3623.0			
3% Engineering Allowance			108.7			
30% Circulation Allowance			1086.9			
Total Allowance			4818.6			
Optional accommodation						
Dispenser bay: car park ticket	1	10.0	10.0			G0826
Waiting area: 5 persons including 1 wheelchair user	1	9.0	9.0			J1204
Waiting quiet area: 3 persons	1	4.5	4.5	Para 3.16		J1211
Linen bay: exchange trolley	1	2.5	2.5	Para 3.204		W1426
Store: linen & clothing back-up	1	9.0	9.0	Para 3.206		W1428
Parking bay: mobile x-ray, image intensifier & ultrasound unit	1	8.0	8.0	Para 3.224		G0143
Day/overnight room: single bedroom, relatives	1	11.0	11.0	Para 2.117		D1302
Day/overnight room: double bedroom, relatives	1	12.0	12.0	Para 2.117		D1304
Sitting room: 5 relatives	1	10.0	10.0	Para 2.117		D1405
Shower, WC & wash: ambulant (non patient)	1	5.0	5.0	Para 2.117		V1301

Appendix 1 – Consumerism

NEW HEALTHCARE CAPITAL INVESTMENT DEPARTMENTAL COST ALLOWANCE GUIDE

This information is reproduced from 'Quarterly Briefing' Volume 11 Number 3 02/2002

Version 2.0 of the Healthcare Capital Investment (HCI) document was released in November 2001 with revised Departmental Cost Allowance Guides (DCAGs), which take into account the principles of “consumerism” in order to produce a better patient environment.

WHAT IS “CONSUMERISM”?

Consumerism is the overarching concept of looking after the needs and desires of patients and visitors in NHS hospitals and clinics. It is about providing a service that recognises and meets the expectations of the individual, rather than a generic group. Consumerism is about anticipating needs and delivering consistently high levels of service that satisfy those needs.

WHY IS IT SUCH A KEY ISSUE FOR THE NHS?

Modernisation is a key element of the Government's approach to public service. The Government's plans for the NHS were outlined in the landmark NHS Plan, which was published in July 2000.

The NHS Plan is the response to the views expressed by patients, visitors and staff on how hospitals could be improved. The Plan sets out a major programme for investment and reform. It puts the patient experience at the heart of delivering healthcare. Patients consulted as part of the NHS Plan made it clear that they expected their care to be delivered in a warm, clean and welcoming environment.

WHY REVIEW DCAGS?

This consumerism-focused DCAG review identifies the capital costs associated with patient expectations and updates the DCAGs in Version 1.0 of the HCI document, published as a supplement to 'Quarterly Briefing' Volume 7 No 1 1997/98.

This updating is necessary as Version 1.0 of the HCI document was published in 1997 and does not provide an adequate reflection of the costs of Government initiatives to meet these patient expectations. The overall

effect on the capital costs of schemes will vary depending on the type of facility. As an example, the increase in overall capital cost of an acute hospital could be in the range of 12–13%.

PRECISELY WHICH CRITERIA ARE COVERED IN THIS REVIEW? WHAT IS INCLUDED?

After careful consideration by a multidisciplinary team drawn from both the public and private sectors, ten headline consumerism criteria (itemised A to J below) based on 36 patient “needs and desires” were ultimately identified and assessed in relation to existing Health Building Notes (HBNs).

These consumerism criteria are described below.

A Privacy and Dignity

- A1 Greater assurance of privacy and dignity
- A2 Women-only day rooms

B Quality of Environment

- B3 Higher specifications of fabric, finishes and services installations to reduce risk of backlog maintenance, thereby encouraging perception of quality facilities and care in ownership
- B4 Natural light
- B5 Natural ventilation
- B6 Zero discomfort from solar gain
- B7 Clean wards/recovery bays
- B8 All medical equipment, consumables and linen discreetly stored
- B9 All clinical waste safely and discreetly stored
- B10 Interiors that instil a sense of quality, care, restfulness and cheerfulness and that work to create a healing environment
- B11 Artwork installed as an essential characteristic of the healing environment, including enhancements to building fabric and specialist commissions (for example decorative lighting, stained glass, murals)

C Patient Accommodation

- C12 Rationalisation of bed space configurations to a ratio of 50% or greater of single beds to multi-bed bay ward accommodation
- C13 Single-sex washing and toilet facilities
- C14 Adequate shower/bathing facilities in in-patient departments where full en-suite facilities are not a design objective
- C15 Improved relatives'/patients' overnight stay facilities and increased supply to meet demand
- C16 Increased relatives' overnight stay facilities adjacent to critical care wards
- C17 More space around beds to accommodate visitors in comfort without instilling sense of crowding and to engender patients' sense of spatial volume/airiness

D Entrances, Reception and Waiting

- D18 Improved waiting areas
- D19 Ward foyers as focal point for arrival for visitors
- D20 Improved main entrances, departmental entrances and reception points

E Security and Safety

- E21 Safe and accessible storage of belongings and cash
- E22 Immediate access by patients to call points for summoning assistance
- E23 Secure facilities that instil a sense of safety and security of possessions

F Barrier-free Access

- F24 No physical or operational barriers to the disabled
- F25 Clear multicultural signage/wayfinding that is non-institutional in character

G Patient Control of Environment

- G26 Patient control of personal ambient environmental temperature
- G27 Task lighting at the bedhead/bedside conducive to reading and close work
- G28 Controllable lighting levels delivered from high-quality non-institutional style luminaires

H Catering

- H29 Easy access to vending machines
- H30 Better food, prepared and served in adherence to a clear hospital food, nutrition and health policy

I Patient Advocacy

- I31 Inclusion of patient advocate's room

J Information and Communication

- J32 Meeting the requirements of "Patient Power" by accommodating integrated bedside communication and entertainment systems
- J33 Easy access to (public) telephones
- J34 Fully-informed patients, relatives and visitors
- J35 Access to multilingual reading material for relaxation, including special needs material in large print or Braille
- J36 Access to personal health records

WHAT IS THE OVERALL COST EFFECT OF THE CONSUMERISM DCAG REVIEW?

The overall cost effect will vary according to a variety of factors, including the type of facility, its functional content and departmental mix/proportions.

The increase in DCAGs will also reduce historical benchmark values of on-costs as a percentage of departmental costs (for example, typically 70% in relation to an acute hospital).

Version 2.0 of the HCI document is available in downloadable format from NHS Estates' website on <http://www.nhsestates.gov.uk> and as hard copy, priced at £75 to the private sector, from NHS Estates, e-mail nhs.estates@dh.gsi.gov.uk

IMPORTANT NOTE

Additions and changes to the HCI document will be highlighted in future issues of 'Quarterly Briefing'. The website version will be changed accordingly. It is therefore the responsibility of users of the HCI document to ensure that they make reference to the latest version.

For general information on DCAGs please contact:

Melvin Goody, NHS Estates, e-mail melvin.goody@dh.gsi.gov.uk

Appendix 2 – National Minimum Standards: Regulations for Independent Health Care

STANDARD A16

A16.1 Children are seen in a separate out-patient area, or where the hospital does not have a separate out-patient area for children, they are seen promptly.

A16.2 The out-patient area is subject to the same environmental audit as any other area used for children to ensure that the area is safe, with any identified risks to children controlled.

A16.3 Toys and/or books suitable to the child's age are provided.

A16.4 Children requiring anaesthesia or sedation are admitted to a bed and not treated in out-patients.

A16.5 All children are admitted to a single room or to one shared with other children only. An environmental risk assessment is performed to ensure the child's safety.

A16.6 Children under the age of 12 are supervised in their rooms at all times either by hospital staff or by their parents.

A16.7 On admission children are carefully weighed with minimal clothing to allow for accurate calculation of drug dosage. Dual checking is recommended for the weighing of small children.

A16.8 There are segregated areas for the reception of children and adolescents into theatre and for recovery, to screen the children and adolescents from adult patients; the segregated areas contain all necessary equipment for the care of children.

A16.9 A parent is to be actively encouraged to stay at all times, with accommodation made available for the adult in the child's room or close by.

A16.10 The child's family is allowed to visit him/her at any time of the day, except when in individual circumstances a decision is made by the clinical team that visiting should be restricted.

A16.11 Adolescents are to have their privacy respected, and every effort is made to respect their wishes if they indicate they prefer to be seen without their parents.

A16.12 The toys provided are safe (compliant with British Safety Standards), and are age-appropriate to the child.

A16.13 When a child is in hospital for more than five days, play is managed and supervised by a qualified Hospital Play Specialist.

A16.14 Children are required to receive education when in hospital for more than five days; the Local Education Authority has an obligation to meet this need and are contacted if necessary. *Reproduced from 'Paediatric Intensive Care: A Framework for the Future' (NHS Executive, 1997)*

Appendix 3 – Definitions of levels of care

In many of the previous discussions about paediatric intensive care, there has been little attempt to differentiate between intensive and high-dependency care – and indeed the definitions are often blurred. A critically ill child may need more than one of the three types of care – as defined by the Paediatric Intensive Care Society – during a single period of treatment in hospital.

High-dependency care (often described as Level 1)

This describes care provided to a child who may require closer observation and monitoring than is usually available on an ordinary children's ward, although much of this care is already provided, with higher staffing levels than usual, in such locations. For example, the child may need continuous monitoring of the heart rate, non-invasive blood-pressure monitoring, or single organ support (but not respiratory support). The child may, for example, be suffering from moderately severe croup, suspected intestinal obstruction or suspected poisoning.

Intensive care (Level 2)

These children will always need continuous nursing supervision. They may need ventilatory support, or support for two or more organ systems. Sometimes the child will have one organ system needing support and one other suffering from chronic failure. Usually children receiving level 2 care are intubated to assist breathing.

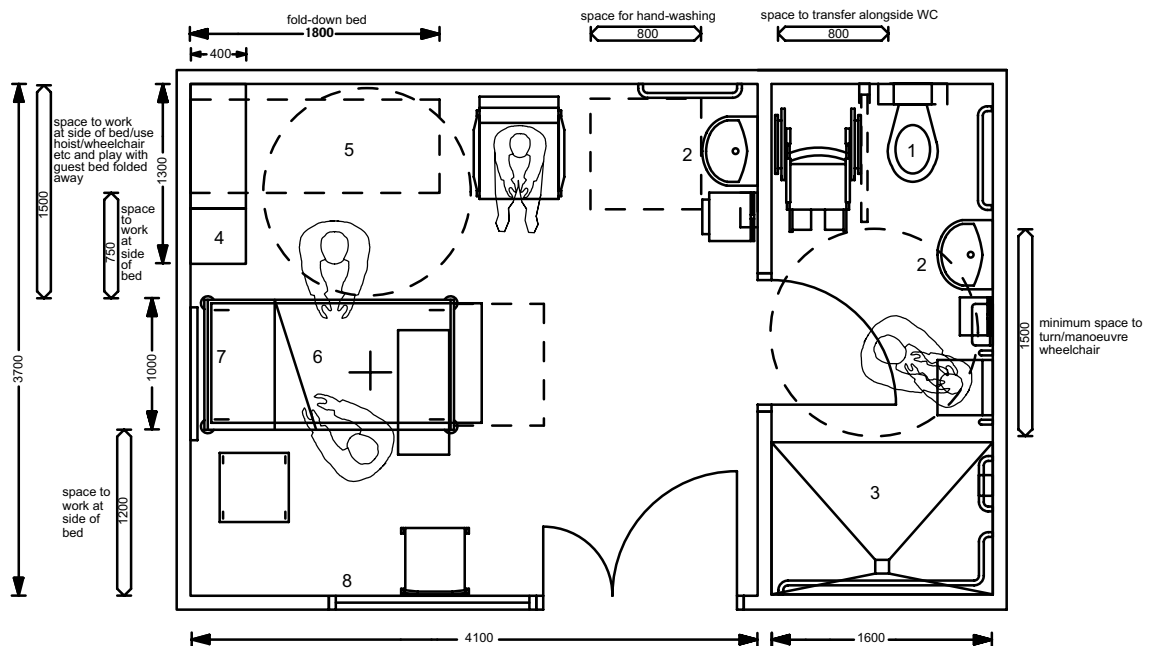
Intensive care (Level 3 or above)

Children with two or more organ systems needing technological support, including advanced respiratory support, will need intensive nursing supervision at all times and will be undergoing complex monitoring and/or therapeutic procedures. They would include, for example, ventilated children undergoing advanced renal support, those who have suffered multiple trauma in major road accidents, or those who have undergone very complex major surgery. Children receiving treatment by extra-corporeal membrane oxygenation (ECMO), which is provided in a very small number of hospitals, are sometimes described as needing Level 4 intensive care.

Appendix 4 – Room layouts and other ergonomic data

Single bedroom (alternative 1) Sheet 1

In-patient single bedroom accommodation with en-suite facilities.
Room can be used by children and young people and has overnight stay facilities for a parent integral to the room.



Notes

1. Disabled WC
2. Clinical hand-wash basin with non-touch taps
3. Assisted shower
4. Wardrobe
5. Fold-down bed
6. Bed/trolley
7. Bedhead services to include medical gases, power, communications and entertainment facilities
8. Observation window with double-glazed unit with integral blind for privacy

The bedroom must have adequate space to manoeuvre a mobile hoist and wheelchair whilst transferring a child to and from the bed/trolley.

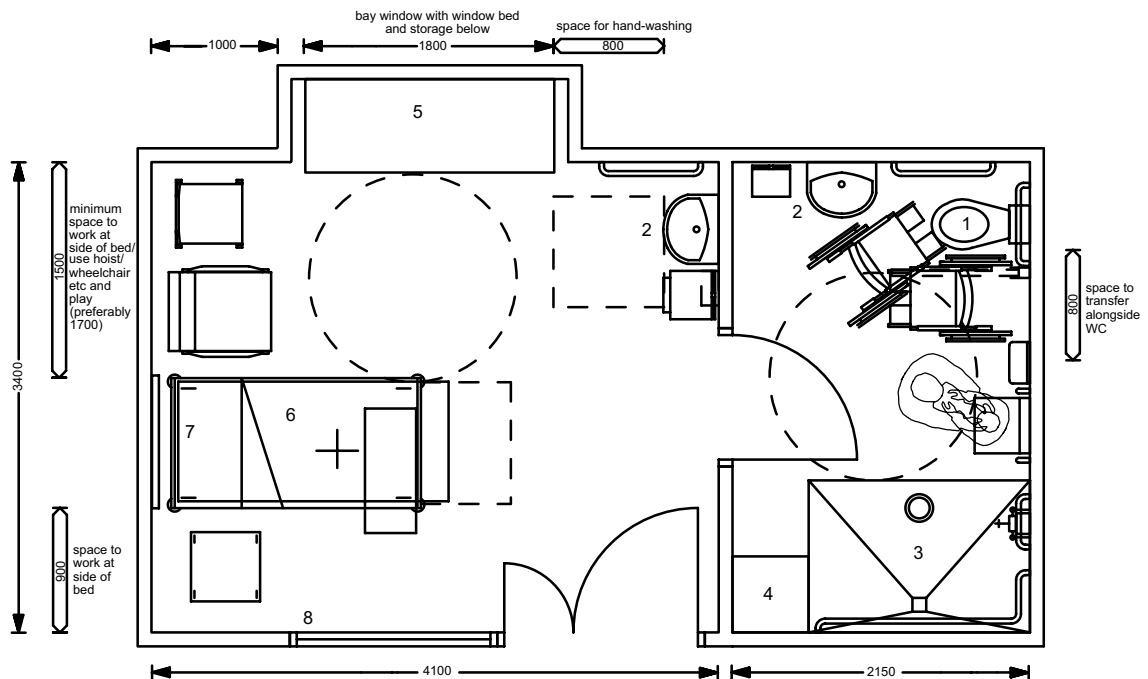
Wheelchairs for children with severe disabilities can be significantly longer and wider than wheelchairs for adults.

There must be sufficient space for staff to lift and move patients safely in both the bedroom and the en-suite facility.

Single bedroom (alternative 2) Sheet 2

In-patient single bedroom accommodation with en-suite facilities.
Room can be used by children and young people and has overnight stay facilities for a parent integral to the room.

Alternative layout with parent's bed located in bay window.



1. Disabled WC
2. Clinical hand-wash basin with non-touch taps
3. Assisted shower
4. Wardrobe
5. Window bed with storage below
6. Bed/trolley
7. Bedhead services to include medical gases, power, communications and entertainment facilities
8. Observation window with double-glazed unit with integral blind for privacy

The bedroom must have adequate space to manoeuvre mobile hoist and wheelchair whilst transferring a child to and from the bed/trolley.

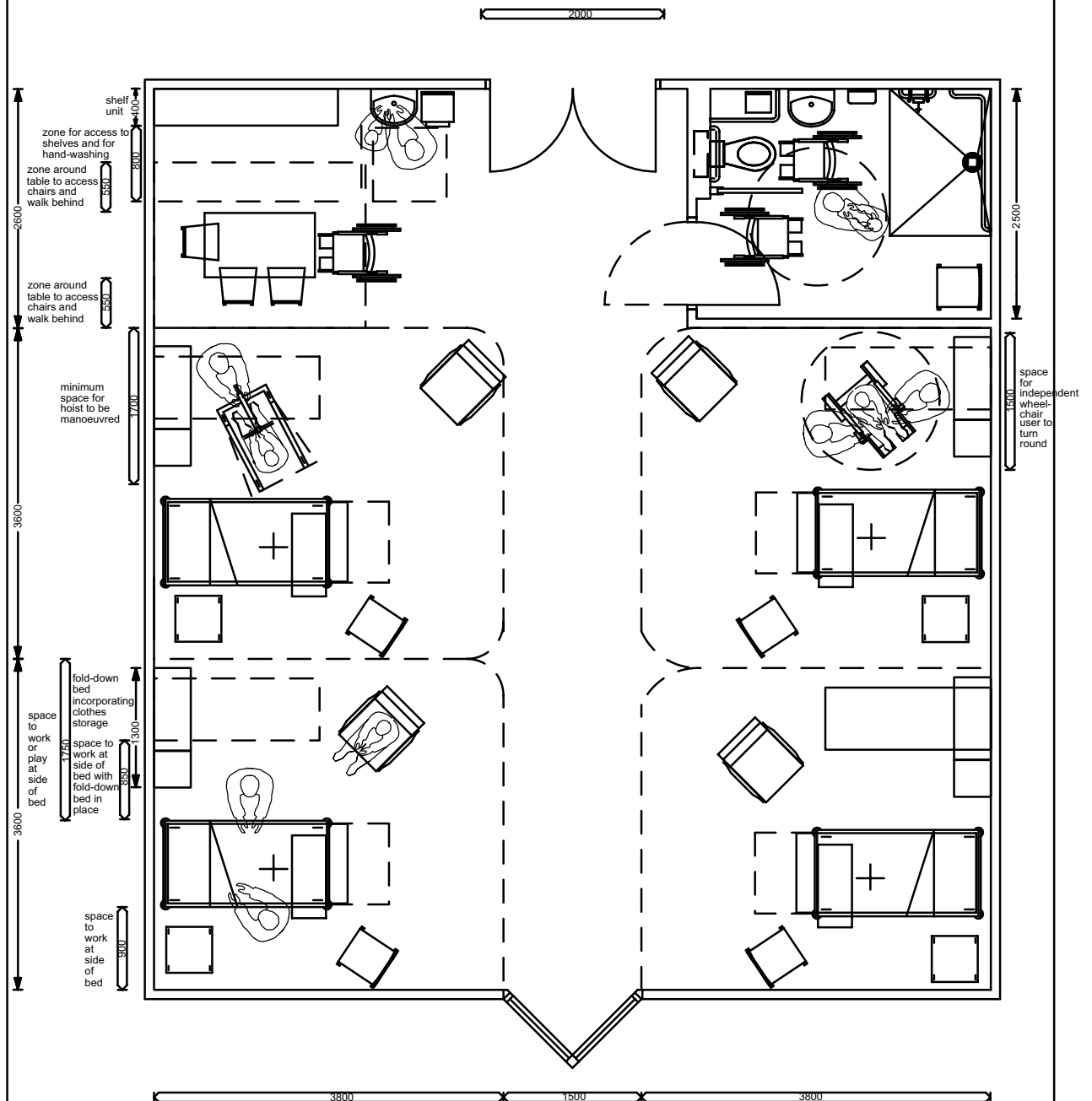
Wheelchairs for children with severe disabilities can be significantly longer and wider than wheelchairs for adults.

There must be sufficient space for staff to lift and move patients safely in both the bedroom and the en-suite facility.

Four-bed room

Sheet 3

In-patient multi-bed accommodation with en-suite facilities.
Room can be used by children and young people and has overnight stay facilities for a parent integral to each bed space.



See [Sheet 1](#) for description of items in each bed space.

Each bed space must be laid out the same to provide maximum privacy.

A play area is included for patients to play together. However, as an option this area can be used to provide a second en-suite facility.

Each bed space must have adequate space to manoeuvre a mobile hoist and wheelchair whilst transferring a child to and from the bed/trolley. (An example of each is shown in the bed spaces.)

Wheelchairs for children with severe disabilities can be significantly longer and wider than wheelchairs for adults.

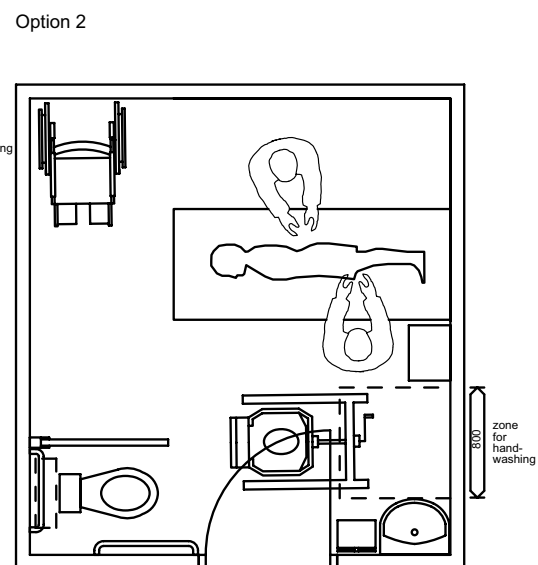
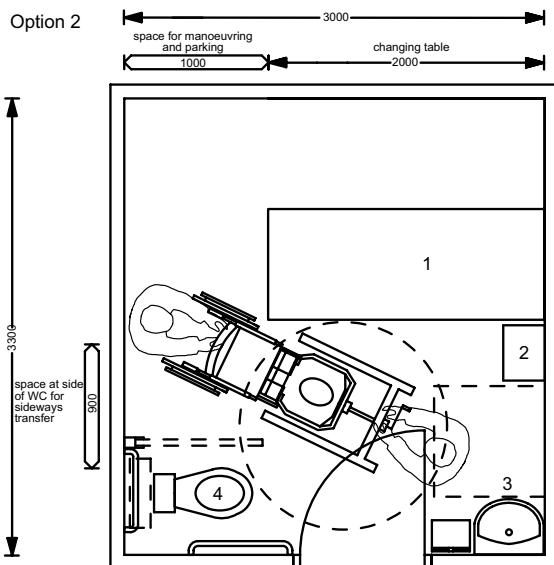
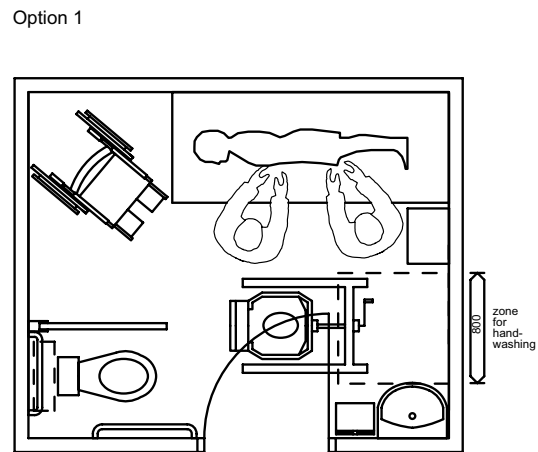
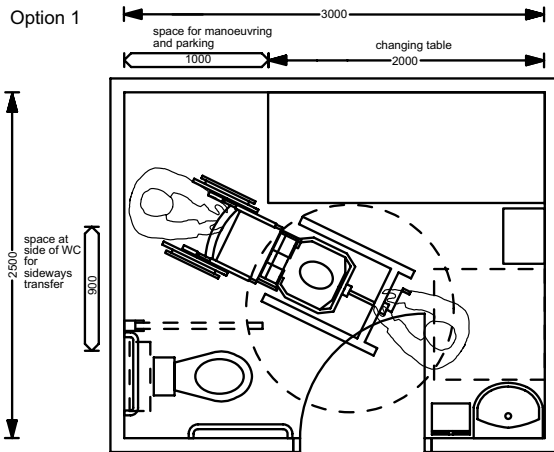
There must be sufficient space for staff to lift and move patients safely in both the bedroom and the en-suite facility.

Children change

Accommodation for changing children and young people aged 0–18 years using a commercial changing table.

Layouts indicate the option of accessing the patient from either one side or both sides of the table.

Sheet 4



1. Changing table
2. Shelf
3. Hand-wash basin with non-touch taps
4. Disabled WC

Children and young people aged 0–18 years may need access to a changing table when visiting the toilet as out-patients or in-patients. The length, width and robustness of the changing table should reflect the size and weight of the users.

Commercially available changing tables are height-adjustable to facilitate access for children of different heights who can climb on or off with assistance but who still require to be changed, or who are transferring from a wheelchair or by hoist, and for the comfort of staff changing the child.

The tables have sides that can be levelled for access and folded up to prevent the individual from rolling off. They have lockable castors so that they can either be pushed against a wall or pulled out for island use.

Some are wall-mounted and so fold up against the wall when not in use.

The changing table must be wide enough to roll the child from side to side during changing (800).

There should be a shelf at the end of the table for placing packs of wipes, pads etc. This should be at approximately worktop height and be positioned alongside the carer, not above the table, to prevent the individual on the table hitting their head on it when rising.

There must be a WC, as some children are able to use the toilet but still need to lie on a changing table to be cleansed and changed. Space is required to transfer sideways or forwards from the wheelchair to the WC or forwards from the hoist.

There must be adequate space to manoeuvre the hoist and wheelchair whilst transferring a child from a wheelchair to the WC and/or changing table, park them, move round them and have access to the WC, the basin and the shelf.

Wheelchairs for children with severe disabilities can be significantly longer and wider than wheelchairs for adults.

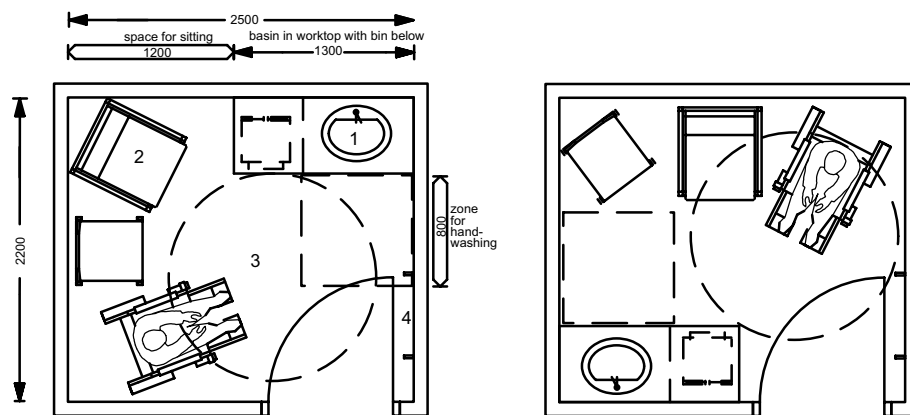
There must be significant space for staff to lift and move patients safely and to use patient handling equipment such as mobile or ceiling-mounted hoists. If the table were in an island location it would be easier for two people to assist with the change.

Infant feed

Accommodation for a parent or carer to breast- or bottle-feed an infant or child. The room should have easy access from the waiting areas.

Space required for a minimum of 2 adults who may use a wheelchair, be accompanied by other children, and have a buggy or pushchair.

Sheet 5



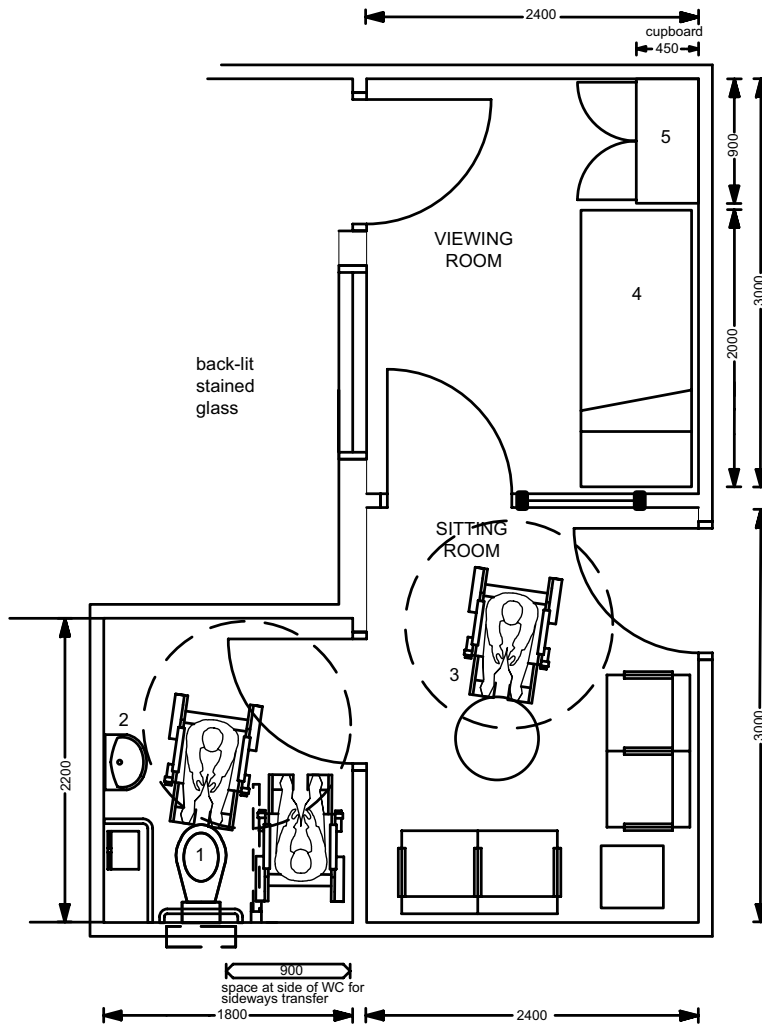
1. Hand-wash basin with non-touch taps with soap and towel dispenser and bin below
2. Comfortable feeding chair
3. Sufficient space to manoeuvre a wheelchair
4. Coat hooks

The hand-wash basin should be located in a vanity unit to provide an additional work surface on which to place a bag and/or bottle/food for preparation. The surface should be large enough to accommodate a waste bin below it.

Bereavement cluster

Accommodation for a bereaved family to view their child in privacy and comfort. It is essential that the rooms are non-denominational.

Sheet 6



1. Disabled WC
2. Hand-wash basin with non-touch taps
3. Sitting area with comfortable seating and sufficient space to manoeuvre a wheelchair
4. Standard trolley/“Moses” basket
5. Wardrobe for storing clothing, linen and religious artefacts

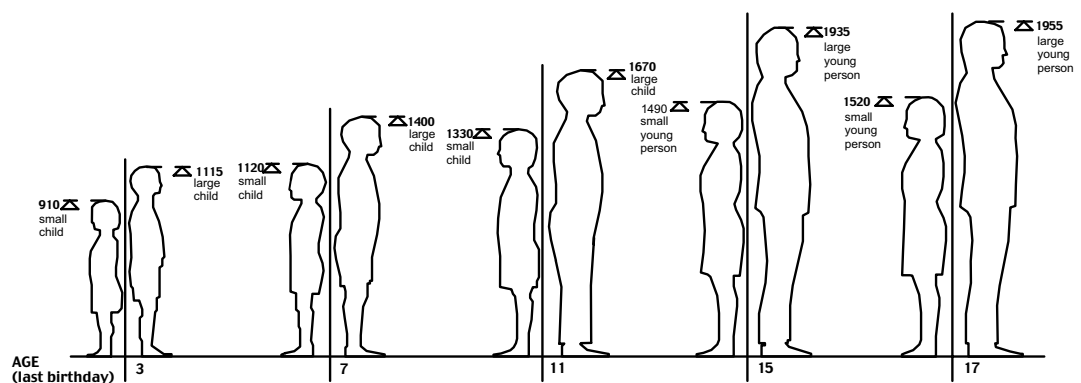
Activities

Stature

Child

Male and female children
and young people
aged 3–17

Sheet 7



Notes

This data is based on the Health Survey for England for Caucasian children. Children from other ethnic groups can be (significantly) shorter or taller, at the same age, than Caucasian children. Thus, the 1st and 99th percentile data for Caucasian children is shown, to ensure that children from other ethnic groups are not compromised in terms of safety or ease of use.

In addition, children in hospital may have an illness or growth disorder which affects their stature.

In each case, only 1% of Caucasian children can be expected to be shorter or taller than the measurement given.

At some ages, boys can be shorter than girls.

Dimensions include a correction of 25 mm for footwear.

Data source: 'PeopleSize 2000' by Open Ergonomics Ltd
(<http://www.openerg.com>)

Activities

Standing eye levels
Grooming – viewing head and shoulders

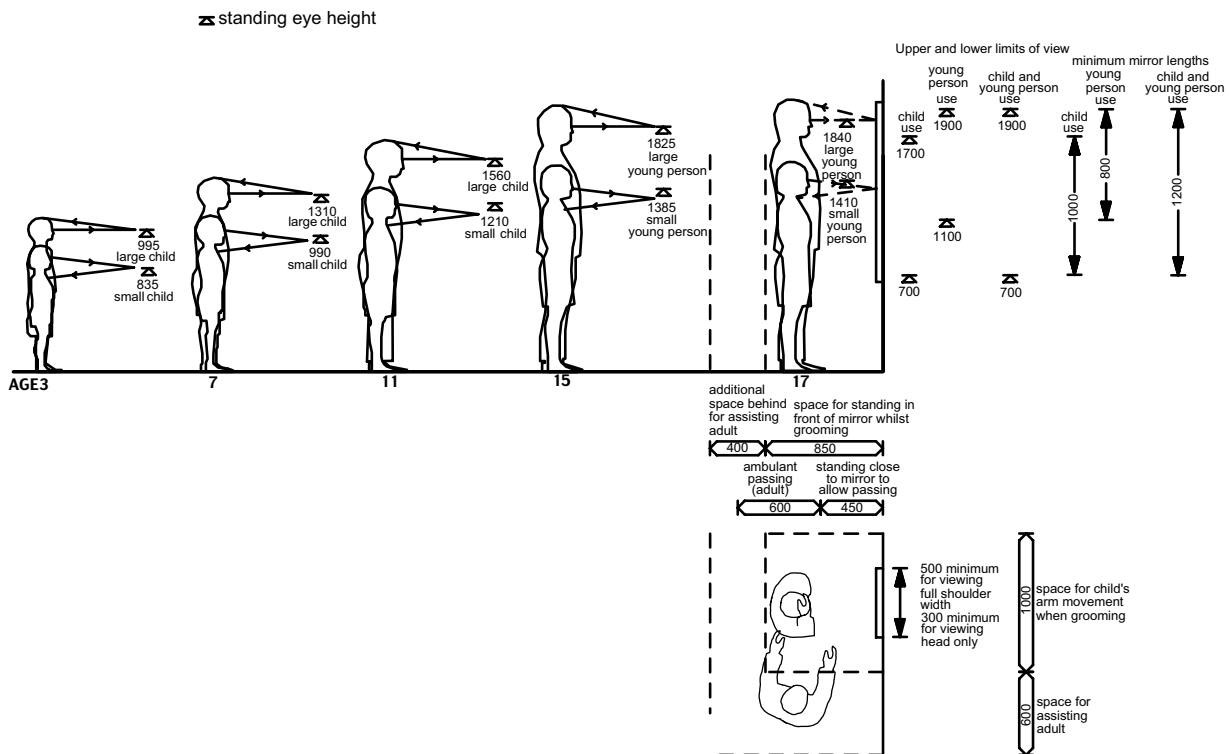
Users

Male and female children
and young people

Mirror

Wall-mounted

Sheet 8



Notes

This data is based on the Health Survey for England for Caucasian children. Children from other ethnic groups can be (significantly) shorter or taller, at the same age, than Caucasian children. Thus, the 1st and 99th percentile data for Caucasian children is shown, to ensure that children from other ethnic groups are not compromised in terms of safety or ease of use.

In addition, children in hospital may have an illness or growth disorder which affects their stature.

In each case, only 1% of Caucasian children can be expected to be shorter or taller than the measurement given.

At some ages, boys can be shorter than girls.

Dimensions include a correction of 25 mm for footwear.

Data source: 'PeopleSize 2000' by Open Ergonomics Ltd
<http://www.openerg.com>

Activities

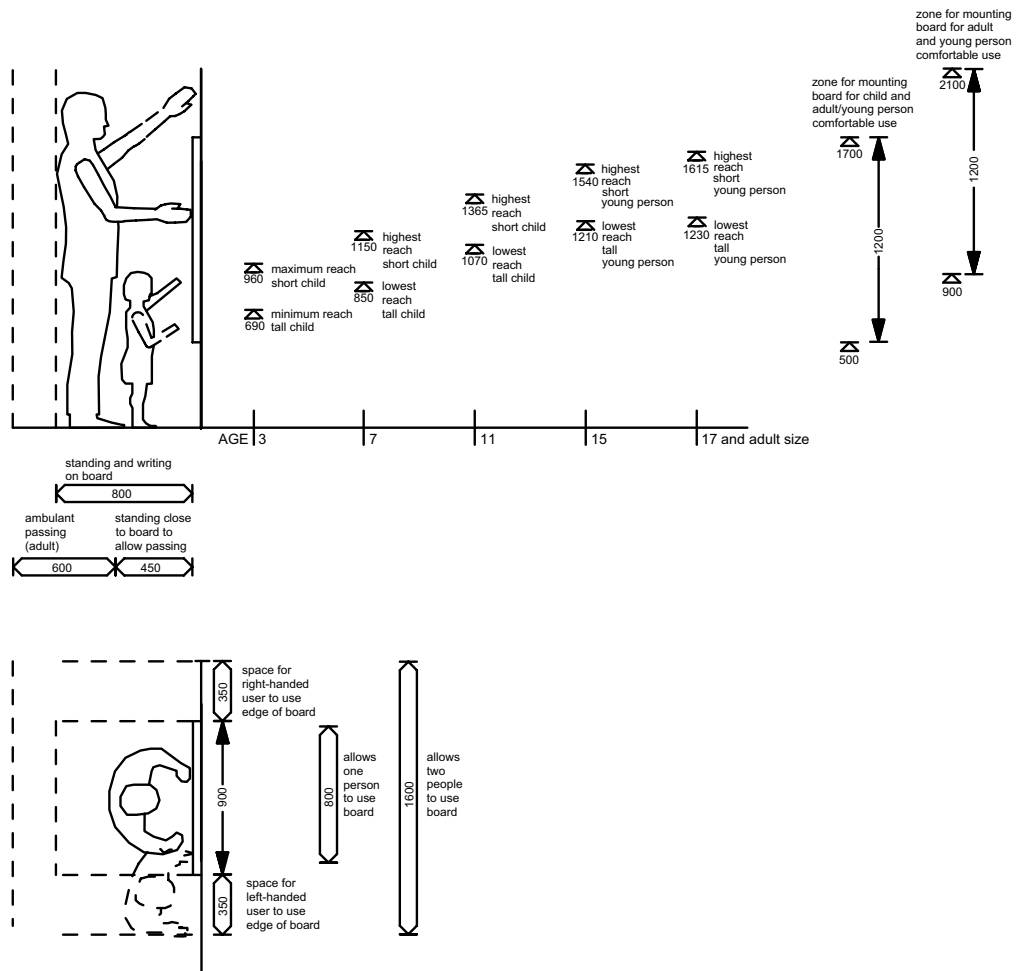
Writing/drawing on a vertical surface

Chalk/marker board

Users

Children/young people and adults

Sheet 9



Notes

This data is based on the Health Survey for England for Caucasian children. Children from other ethnic groups can be (significantly) shorter or taller, at the same age, than Caucasian children. Thus, the 1st and 99th percentile data for Caucasian children is shown, to ensure that children from other ethnic groups are not compromised in terms of safety or ease of use.

In addition, children in hospital may have an illness or growth disorder which affects their stature.

In each case, only 1% of Caucasian children can be expected to be shorter or taller than the measurement given.

At some ages, boys can be shorter than girls.

Dimensions include a correction of 25 mm for footwear.

Critical criteria: Maximum comfortable reach to write/draw for shortest user
Minimum comfortable reach to write/draw for tallest user

User space must take account of possible use of space by adult, eg for teaching purposes.

Data source: 'PeopleSize 2000' by Open Ergonomics Ltd
<http://www.openerg.com>

Activities

Placing items on or removing items from shelves

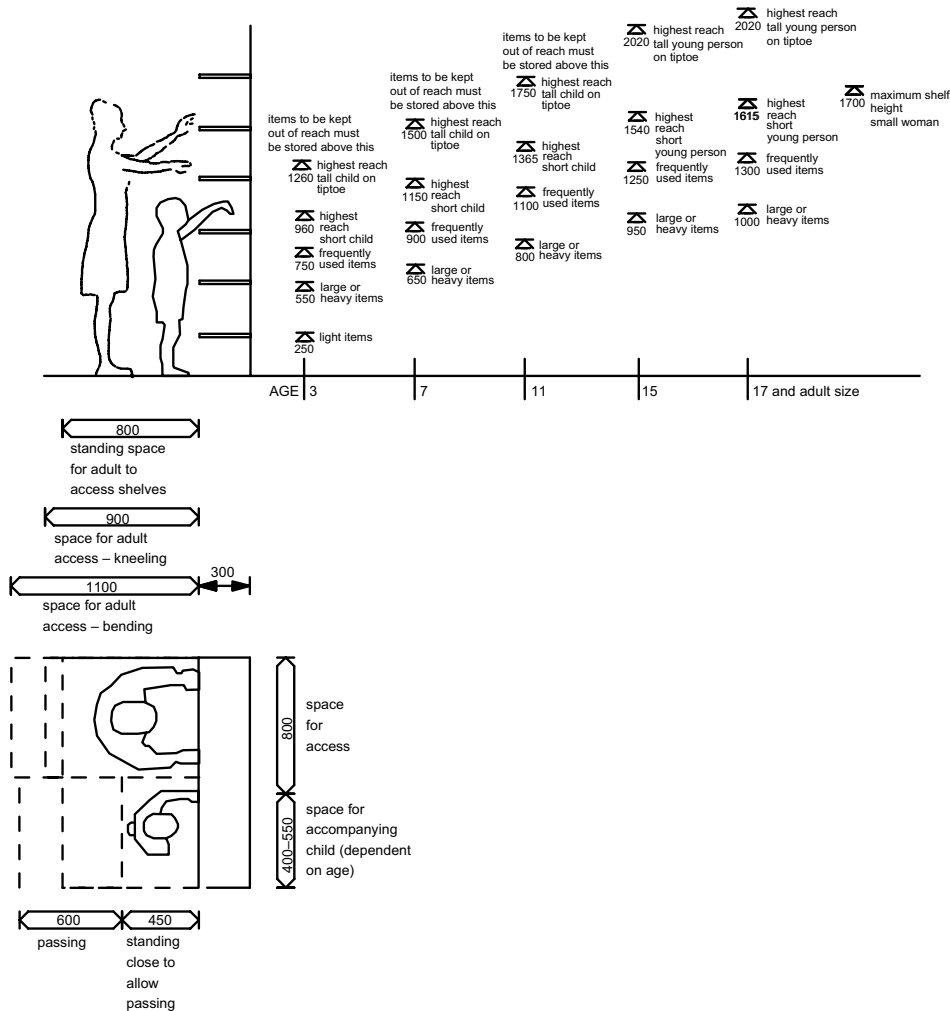
Shelf

Wall-mounted 300 deep

Users

Children/young people and adults

Sheet 10



Notes

This data is based on the Health Survey for England for Caucasian children. Children from other ethnic groups can be (significantly) shorter or taller, at the same age, than Caucasian children. Thus, the 1st and 99th percentile data for Caucasian children is shown, to ensure that children from other ethnic groups are not compromised in terms of safety or ease of use.

In addition, children in hospital may have an illness or growth disorder which affects their stature.

In each case, only 1% of Caucasian children can be expected to be shorter or taller than the measurement given.

At some ages, boys can be shorter than girls.

Dimensions include a correction of 25 mm for footwear.

Space requirements for access to shelves is determined by the needs of adults (nursing staff, parents, domestic staff etc), not by children.

Steps are required by an increasing number of users above 1700 and by most users above 1850, therefore shelves above 1800 are not recommended.

Frequently used small items should be stored at or near worktop height. Heavy items should be stored at waist height.

The inter-shelf interval for fixed or adjustable shelving should preferably not be less than the depth of the shelf (except where items are stored in trays or drawers).

Data source: 'PeopleSize 2000' by Open Ergonomics Ltd
<http://www.openerg.com>

References

LEGISLATION

Approved Document N, 'Glazing – in relation to impact. Opening and cleaning'. The Building Regulations. DETR, 1999.

The Building Regulations 2000, SI 2000: 2351.
<http://www.hmso.gov.uk/si/si2000/20002351.htm>

Children Act 1989. The Stationery Office, 1989.
http://www.legislation.hmso.gov.uk/acts/acts1989/Ukpga_19890041_en_1.htm

Chronically Sick and Disabled Persons Act 1970.
The Stationery Office, 1970.

Disability Discrimination Act 1995. The Stationery Office, 1995.
http://www.legislation.hmso.gov.uk/acts/acts1995/Ukpga_19950050_en_1.htm

Education Act 1981. The Stationery Office, 1981.

Health and Safety at Work etc Act 1974. HMSO, 1974.

Human Rights Act 1998. The Stationery Office, 1993.
<http://www.legislation.hmso.gov.uk/acts/acts1998/19980042.htm>

Radioactive Substances Act 1993. The Stationery Office, 1993.
http://www.hmso.gov.uk/acts/acts1993/Ukpga_19930012_en_1.htm

The Construction (Design and Management) Regulations 1994, SI 1994: 3140. The Stationery Office, 1994.
http://www.legislation.hmso.gov.uk/si/si1994/Uksi_19943140_en_1.htm

The Construction (Design and Management) (Amendment) Regulations 2000, SI 2000: 2380. The Stationery Office, 2000.
<http://www.legislation.hmso.gov.uk/si/si2000/20002380.htm>

The Control of Substances Hazardous to Health (COSHH) Regulations 2002. SI 2002 No 2677. The Stationery Office, 2002.
<http://www.legislation.hmso.gov.uk/si/si2002/20022677.htm>

Gas Safety (Installation and Use) Regulations 1996.
http://www.legislation.hmso.gov.uk/si/si1996/ukxi_19960550_en_1.htm

The Health and Safety (Safety Signs and Signals) Regulations, SI 1996: 341.
http://www.legislation.hmso.gov.uk/si/si1996/Uksi_19960341_en_1.htm

The Ionising Radiation Regulations 1999, SI 1999: 3232. The Stationery Office, 1999.
<http://www.legislation.hmso.gov.uk/si/si1999/19993232.htm>

The Ionising Radiation (Medical Exposure) Regulations 2000, SI 2000: 1059. The Stationery Office, 2000.
<http://www.legislation.hmso.gov.uk/si/si2000/20001059.htm>

Management of Health and Safety at Work Regulations SI 1999: 3242.
<http://www.legislation.hmso.gov.uk/si/si1999/19993242.htm>

The Manual Handling Regulations 1992, SI 1992: 2793. The Stationery Office, 1992.

The Workplace (Health, Safety and Welfare) Regulations 1992, SI 1992: 3004. The Stationery Office, 1992.

Noise at Work Regulations 1989.

SI 2000/128 The Pressure Systems Safety Regulations. The Stationery Office, 2000.
<http://www.legislation.hmso.gov.uk/si/si2000/20000128.htm>

SI 1999/2001 The Pressure Equipment Regulations 1999. The Stationery Office, 1999.
<http://www.legislation.hmso.gov.uk/si/si1999/19992001.htm>

The Provision and Use of Work Equipment Regulations, SI 1998: 2306.
<http://www.hmso.gov.uk/si/si1998/19982306.htm>

DEPARTMENT OF HEALTH

The Children's National Service Framework Emerging Findings. Department of Health, The Stationery Office, 2003.

The Children's National Service Framework Hospital Services Standard. Department of Health, The Stationery Office, 2003.

Demonstrably different. NHS Executive, 1991.

First impressions, lasting quality. NHS Executive, 1992.

Glass, D, Hall, A & Harrington, J (1989) **The Control of Substances Hazardous to Health – Guidance for the Initial Assessment in Hospitals.** Department of Health, The Stationery Office, 1989.

Guidance from the Expert Advisory Group on AIDS: HIV and infant feeding. PL/CNO (99)5. Department of Health, The Stationery Office, 2001.

Health building and estate management: building legislation compliance procedures. HC(88)60/HC(FP)(88)29. Department of Health, The Stationery Office, 1998.

High Dependency Working Party Report. Department of Health, The Stationery Office, 2001.
<http://www.dh.gov.uk>

Hospital Episode Statistics (2000) Admission data.
<http://www.dh.gov.uk>

Hospital Episode Statistics (2002) Operating data.
<http://www.dh.gov.uk>

NHS Executive (1997) **Paediatric Intensive Care: 'A Framework for the Future'.** Department of Health, The Stationery Office, 1997.
<http://www.dh.gov.uk>

The NHS Plan. Cmnd. 4818-I. Department of Health, The Stationery Office, 2000.

Learning from Bristol. Cm. 5363. Department of Health, The Stationery Office, 2002.

Listening, Hearing and Responding. DH Action Plan: Core principles for the involvement of children and young people. Department of Health, The Stationery Office, 2002.

National Minimum Standards: Regulations for Independent Health Care. Department of Health, The Stationery Office, 2002.

The Victoria Climbié Inquiry: Report of an Inquiry by Lord Laming. The Stationery Office, 2003.

NHS ESTATES

The art of good health: using visual arts in healthcare. NHS Estates, The Stationery Office, 2002.

The art of good health: a practical handbook. NHS Estates, The Stationery Office, 2002.

Better by Design: Pursuit of Excellence in Healthcare Buildings. NHS Estates, The Stationery Office.

Better Hospital Food programme: Catering Services for Children and Young Adults. NHS Estates, The Stationery Office, 2003.

Meeting the educational needs of children and young people in hospital. Building Bulletin 96. DfES/NHS Estates, The Stationery Office, 2003.
<http://www.teachernet.gov.uk>

Enhancing privacy and dignity – achieving single sex accommodation. NHS Estates, The Stationery Office, 2002.

Environments for quality healthcare: health buildings in the community. NHS Estates, The Stationery Office, 1994.

Friendly healthcare environments for children and young people. NHS Estates, The Stationery Office, 2003.

Healthcare Capital Investment. NHS Estates, The Stationery Office, 2001.

HFN 14 Disability access. NHS Estates, The Stationery Office, 1996 (under review).

HFN 30 Infection control in the built environment. NHS Estates, The Stationery Office, 2004.

HGN Structured cabling for IT systems. NHS Estates, The Stationery Office, 1996.

HGN "Safe" hot water and surface temperatures. NHS Estates, The Stationery Office, 1998.

Improving the Patient Experience: Best practice guide. NHS Estates, The Stationery Office, forthcoming.

Sustainable development: environmental strategy for the NHS.
<http://www.nhsestates.gov.uk>

NHS Environmental Assessment Tool (NEAT).
http://www.nhsestates.gov.uk/sustainable_development/content/construction.html

Quarterly Briefing Volume 11 Number 3 02/2002.

Welcoming entrances and reception areas. NHS Estates, The Stationery Office, 2003.

Sustainable development in the NHS. NHS Estates, The Stationery Office, 2004.

Health Building Notes (HBNs)

HBN 4 In-patient accommodation – options for choice. NHS Estates, The Stationery Office, 1997 (under review).

HBN 6 Facilities for diagnostic imaging and interventional radiology. Volume 1. NHS Estates, The Stationery Office, 2004.

HBN 6 Facilities for diagnostic imaging and interventional radiology. Volume 2: BMD, Dental, neuro and PACS. NHS Estates, The Stationery Office, 2002.

HBN 6 Facilities for diagnostic imaging and interventional radiology. Volume 3: Extremity and open MRI and construction detail for diagnostic imaging. NHS Estates, The Stationery Office.

HBN 8 Facilities for rehabilitation services. NHS Estates, The Stationery Office, 2000.

HBN 12 Out-patients department, Supplement 2: Oral surgery, orthodontics, restorative dentistry. NHS Estates, The Stationery Office, 1993 (under review).

HBN 12 Out-patients department, Supplement 3: ENT and audiology clinics, hearing aid centre. NHS Estates, The Stationery Office, 1993 (under review).

HBN 20 Facilities for mortuary and post-mortem services. NHS Estates, The Stationery Office, 2001.

HBN 22 Accident and emergency facilities for adults and children. NHS Estates, The Stationery Office, 2004.

HBN 26 Facilities for surgical procedures. NHS Estates, The Stationery Office, 2004.

HBN 30 Cardiac facilities for children and young people. NHS Estates, The Stationery Office, 2004.

HBN 40 Common activity spaces. NHS Estates, The Stationery Office, 1995.

HBN 57 Facilities for critical care. NHS Estates, The Stationery Office, 2004.

HBN 43 Facilities for child and adolescent mental health services. NHS Estates, The Stationery Office, forthcoming.

Health Technical Memoranda (HTMs)

HTM 55 Windows. NHS Estates, The Stationery Office, 2004.

HTM 56 Partitions. NHS Estates, The Stationery Office, 2004.

HTM 57 Internal glazing. NHS Estates, The Stationery Office, 2004.

HTM 58 Internal doorsets. NHS Estates, The Stationery Office, 2004.

HTM 59 Ironmongery. NHS Estates, The Stationery Office, 2004.

HTM 60 Ceilings. NHS Estates, The Stationery Office, 2004.

HTM 61 Flooring. NHS Estates, The Stationery Office, 2004.

HTM 71 Materials management modular storage. NHS Estates, The Stationery Office, 1998.

HTM 81 Fire precautions in new hospitals. NHS Estates, The Stationery Office, 1996.

HTM 82 Alarm and detection systems. NHS Estates, The Stationery Office, 1996.

HTM 87 Textiles and furniture. NHS Estates, The Stationery Office, 2001.

HTM 2005 Building management systems. NHS Estates, The Stationery Office, 1996.

HTM 2007 Electrical services supply and distribution. NHS Estates, The Stationery Office, 1993.

HTM 2011 Emergency electrical services. NHS Estates, The Stationery Office, 1993.

HTM 2021 Electrical safety code for high voltage systems (Escode – HV). NHS Estates, The Stationery Office, 1993, 1994.

HTM 2022 Medical gas pipeline systems. NHS Estates, The Stationery Office, 1996: 1997.

HTM 2023 Access and accommodation for engineering services. NHS Estates, The Stationery Office, 1995.

HTM 2025 Ventilation in healthcare premises. NHS Estates, The Stationery Office, 1994.

HTM 2027 Hot and cold water supply, storage and mains services. NHS Estates, The Stationery Office, 1995.

HTM 2031 Clean steam for sterilization. NHS Estates, The Stationery Office, 1997.

HTM 2040 The control of legionellae in healthcare premises – a code of practice. NHS Estates, The Stationery Office, 1994.

HTM 2045 Acoustics: Design considerations. NHS Estates, The Stationery Office, 1996.

HTM 2055 Telecommunications (Telephone exchanges). NHS Estates, The Stationery Office, 1994.

BRITISH STANDARDS

BS EN 850: 1997 Transportable gas cylinders. Pin-index, yoke-type valve outlet connections for medical use. British Standards Institution (BSI), 1997.

BS EN 1176-3:1998 Playground equipment. Additional specific safety requirements and test methods for slides. BSI, 1998.

BS EN 1176-4:1998 Playground equipment. Additional specific safety requirements and test methods for runways. BSI, 1998.

BS EN 1177:1998 Impact absorbing playground surfacing. Safety requirements and test methods. BSI, 1998.

BS 4533: Luminaires. Some parts superseded by EN 60598.

BS 4737: Various – intruder alarms for buildings. BSI.

BS 5665: Safety of toys. Some parts replaced by BS EN 71 Safety of toys. BSI.

BS EN 12056–2: 2000 Gravity drainage systems inside buildings – Part 2: Sanitary pipework, layout and calculations. BSI.

BS 5979: 2000 Code of practice for remote centres receiving signals from security systems. BSI, 2000.

BS 6206:1981 Specification for impact performance requirements for flat safety glass and safety plastics for use in buildings. BSI, 1981.

BS 6651: 1999 Code of practice for protection of structures against lightning. BSI, 1999.

BS 7042: 1988 Specification for high security intruder alarm systems in buildings. BSI, 1988.

BS 7376:1990 Specification for inclusion of glass in the construction of tables. BSI, 1990.

BS 7449:1991 Specification for inclusion in the construction of furniture, other than tables or trolleys, including cabinets, shelving systems and wall-hung or freestanding mirrors. BSI, 1991.

BS 7671: 2001 Requirements for electrical installations. The Institution of Electrical Engineers (IEE) Wiring Regulations. 16th edition. Amendment No 1 AMD 13628 published February 2002. BSI, 2001.

BS 8409:2002 Soft indoor play areas. Code of practice. BSI, 2002.

OTHER PUBLICATIONS

Anshen Dyer (1999) **Child and Parent Concept Sessions.** Great Ormond Street Hospital for Children NHS Trust, London.

BSRIA (1992) **Technical Note TN 10/92 – Space Allowances for Building Services Distribution Systems.** BSRIA, London.

Building Services Research and Information Association (1993) **Technical Note TN 9/92 – Space and Weight Allowances for Building Services Plant.** BSRIA, London.

Child Bereavement Trust (forthcoming) **Best practice guidance for the care of the family when their child or baby dies in the special care baby unit, neonatal or paediatric intensive care unit, the paediatric ward or the A&E unit.** CBT.

Children’s Heart Services – Into the Future (conference 15 September 2001: DH Workshop proceedings). Children’s Heart Federation.

Chartered Institute of Building Services Engineers (1998) **CIBSE Guide – Energy Efficiency in Buildings.** CIBSE, London.

CIBSE (1989) Lighting Guide LG2 – Hospitals and Health Care Buildings. CIBSE, London.

CIBSE (2002) Lighting Guide LG3 – The Visual Environment for Display Screen Use. CIBSE, London.

Civi, C (2000) ‘The design of children’s hospitals taking into account the physical and psycho-social needs of child patients’. Abstract from doctoral thesis. School of Architecture and Landscape, Kingston University, UK.

DfES/DH (2001) **Access to education for children and young people with medical needs.** DfES. <http://www.dfes.gov.uk/sickchildren>

Department of the Environment, Transport and the Regions (1999) **The Building Regulations Approved Document M: Access and Facilities for Disabled People.**

Disability Rights Commission (2002) **Rights of Access: Goods, Facilities, Services and Premises.** The Stationery Office, London.

Freeney, M, Cook, R, Hale, B & Duckworth, S (1999) **Working in Partnership to Implement Section 21 of the Disability Act 1995 Across the NHS.** Disability Matters Ltd.

- Kari, JA, Donovan, C, Li, J & Taylor, B (1999) 'Teenagers in hospital: what do they want?', *Nursing Standard*, **Vol 13 No 23**, pp 49–51.
- L4A (1990) **'Building the Best': The new Derbyshire Children's Hospital**. Report of a consultation workshop with staff, parents and children.
- Lighting Guide: Hospital and Healthcare Buildings (LG2)**. Chartered Institution of Building Services Engineers (CIBSE), 1989 (under review).
- MacFaul, R **Technology dependent children**. DH.
- MacFaul R, Werneke U (2001) 'Recent trends in hospital use by children', *Arch. Dis. Child*, **Vol 85**, pp 203–207.
- Public Health Laboratory Service Report (1999) **Hygiene for hydrotherapy pools**. PHLS, London.
- Redshaw, M & Smithell, R (2000) **Children in Hospital: the impact of the hospital environment on children, parents and nursing staff**. Institute of Child Health, Bristol.
- Sure Start (forthcoming) **Preparing a strategy for capital works and facilities**. The Stationery Office. <http://www.surestart.gov.uk>
- Kennedy (2001) **The Report of the Public Inquiry into children's heart surgery at the Bristol Royal Infirmary 1984–1995**.
- The Royal College of Surgeons of England (2000) **Children's Surgery – A First Class Service**. RCS, England.
- The Royal College of Ophthalmologists and the British Paediatric Association (1994) **Ophthalmic Services for Children**. London.
- The Royal College of Anaesthetists (2001) **Guidance on the provision of paediatric anaesthetic services**. RCA, London.
- The Royal College of Paediatrics and Child Health (1999) **A&E services for children**. RCPCH, London.
- FURTHER READING**
- Baker, CF (1992) 'Discomfort to environmental noise: heart rate response of SICU Patients'. *Critical Care Nurse Quarterly* **15 (2)**, pp 75–90.
- Barker, P, Barrick, J & Wilson, R (1995) **Building Sight: A Handbook of Building and Interior Design Solutions to Include the Needs of Visually Impaired People**. RNIB, London.
- Boyee, D as cited in Heerwagen, J. (1990) 'Affective functioning, light hunger and room brightness preferences', *Environment and Behaviour*, **Vol 22 No 5**, pp 608–665.
- Canter, D & Donaldson, I (1992) **Handbook of Environmental Psychology in the UK**, Chapter 36. Krieger Publishing Company, Florida.
- Carpman, J & Grant, MA (2001) **Design That Cares – Planning Health Facilities for Patients and Visitors**. Jossey-Bass.
- The Center for Health Design Video – **Through the Patient's Eyes**.
- Cooper-Marcus, C (1995) **Gardens in Healthcare Facilities: Uses, Therapeutic Benefits & Design Recommendations**. The Center for Health Design, California.
- The Dulux Design Guide for Use of Colour and Content**. Results of Project Rainbow Research Project.
- Gadd, L (1980) **Deadly Beautiful – The World's Most Poisonous Animals and Plants**. Macmillan, New York.
- Grube (1989) as cited in Heerwagen, J (1990) 'Affective functioning. Light hunger and room brightness preferences', *Environment and Behaviour*, **Vol 22 No 5**, pp 608–635.
- Hobday, R (1999) 'Solar gains', *Hospital Development*, **November**, pp 32–34.
- Hospital Infection Society (HIS) (2002) **Behaviours and Rituals in Operating Theatres**. HIS, London.
- Jones, H (1996) **Your Child's Health**. Hodder & Stoughton.
- Katcher, S (1984) cited in Ulrich, RS (1992) 'Effects of interior design on wellness: theory and recent scientific research', *Journal of Healthcare Interior Design*, **Vol 3**, pp 97–109.
- King Komiske, B (1999) **Designing the World's Best – Children's Hospital**. Images Publishing.
- Locsin, RGRAC (1980) **The Effect of Music on Pain of Selected Postoperative Patients** (The Research Report 1999), p 4. The Centre for Health Design, London.
- The Nuffield Trust (1999) **Building a 2020 Vision – Future Healthcare Environments**. The Nuffield Trust, London.
- The Physical and Developmental Environment of the High Risk Infant Conference**, Florida, February 2001, Transcript and Notes.
- Saegert, S (1986) 'Stress including and reducing qualities of environment', **Environmental Psychology**, 2nd edition. New York.

Scher, P (1996) **Patient Focused Architecture for Health Care: A Study for Arts for Health**. Faculty of Art and Design, Manchester Metropolitan University.

The Scottish Office (1999) **Guidance on the use of tactile paving surfaces**. DETR.

Simons, R & Ulrich, RS (1986) 'Stress recovery during exposure to natural and urban environments', *Journal of Environmental Psychology*, **Vol 18**, pp 450–466.

Smith, J (1989) **Sense and Sensibilities**. John Wiley & Sons Limited.

Soutar, RL & Wilson, JA (1986) 'Does hospital noise disturb patients?', *British Medical Journal*, **Vol 292**, p 305.

Stephoe, A, Appels, P (1991) cited in Ulrich, RS (1991) 'Effects of interior design on wellness: theory and recent scientific research', *Journal of Healthcare Interior Design*, **Vol 3**, pp 97–109.

Topf, M (1992) 'Effects of personal control over hospital noise on sleep', *Research in Nursing and Health*, **Vol 15**, pp 19–28.

Topf, M & Davis, JE (1993) 'Critical care unit noise and rapid eye movement (REM) sleep', *Heart Lung*, **Vol 22 No 3**, pp 252–258.

Ulrich, RS (1983) 'Visual landscapes and psychology wellbeing'. Paper presented to the Annual Meeting of the Environmental Design Research Associations, Arizona.

Ulrich, RS (1984) 'View through a window may influence recovery from surgery', *Science*, **Vol 224**, pp 420–421.

Ulrich, RS & Ludden, T (1990) 'Effects of nature and abstract pictures on patients recovering from open heart surgery', *Journal of Behaviour Medicine*, **June**, pp 27–30.

USEFUL WEBSITES

Better Hospital Food:

http://www.patientexperience.nhsestates.gov.uk/bhf/bhf_content/home/home.asp

Children's Heart Federation:

<http://childrens-heart-fed.org.uk/regents%20report.htm>

Baby Friendly Health Initiative:

<http://www.babyfriendly.org.uk>

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