HEALTH BUILDING NOTE 52
VOLUME 3

Accommodation for day care
Medical investigation and treatment unit

1995

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Health Building Note 52

Volume 3

Accommodation for day care
Medical investigation and treatment unit

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About this publication

The Health Building Note series is intended to give advice on the briefing and design implications of Departmental policy.

These Notes are prepared in consultation with representatives of the National Health Service and appropriate professional bodies.

Health Building Notes are aimed at multidisciplinary teams engaged in:

- designing new buildings;
- adapting or extending existing buildings.

Throughout the series, particular attention is paid to the relationship between the design of a given department and its subsequent management. Since this equation will have important implications for capital and running costs, alternative solutions are sometimes proposed. The intention is to give the reader informed guidance on which to base design decisions.

Health Building Note 52, Volume 3

Volume 3 of HBN 52 focuses on a self-contained, dedicated medical investigation and treatment unit for adults located in an acute general hospital.

Accommodation is provided for:

- four main groups of patient-related activities, including reception and registration, waiting, consultation, examination and treatment,. and recovery and discharge;
- staff;
- storage.

Appendix 5 describes how Volumes 1 and 2 of HBN 52, ‘Day surgery unit’ and ‘Endoscopy unit’, and this volume can be used to plan and design a combined day surgery, endoscopy and medical investigation and treatment unit.

Contents

1.0 Scope of Volume 3 of the Health Building Note 52

Introduction

1.1 Day care services mainly include day surgery, endoscopy, and medical investigation and treatment. Accordingly, this Health Building Note-'Accommodation for day care' is in three parts:

Volume 1 - Day surgery unit (1993);

Volume 2 - Endoscopy unit (1994);

Volume 3 - MI&T unit.

Together they replace HBN 38-'Accommodation for adult acute day patients' (1982).

1.2 This volume provides guidance for the planning and design of accommodation for a medical investigation and treatment (Ml&T) unit in an acute general hospital. Volume 2 describes how Volumes 1 and 2 can be used to plan and design a combined day surgery and endoscopy unit. A unit which combines spaces attended by patients in an MI&T unit with accommodation for day surgery and/or endoscopy is not recommended (see paragraphs 2.21 to 2.23, 3.53 and Appendix 5).

1.3 Developments in the delivery of primary and community health care services should be recognised by providers planning accommodation for day care in an acute general hospital. Options for the provision of day surgery, endoscopy and medical investigation and treatment services, in less threatening and less costly environments, may include:

a. a free-standing unit. Project teams planning a free-standing unit should consider the need for facilities additional to those described in this volume, for example, accommodation which in an acute general hospital would be provided on a whole hospital basis;

b. primary health care centres and local health care resource centres run by general medical practitioners (see HBN 36 - 'Local healthcare facilities');

and, for medical investigation and treatment only:

c. patients' own homes (see Health Facilities Note 12 - 'Acute care at home').

1.4 Care has been taken to ensure that the guidance and recommendations for the accommodation described in this volume are as economical as possible without detriment to clinical standards.

Range of provision

Inclusions

1.5 This volume describes a self-contained, dedicated MI&T unit suitable for performing medical investigation and treatment procedures on adult patients. It is suitable for medical investigation and treatment procedures which:

a. are routinely performed in an acute general hospital;

b. can be performed in a consulting/examination room, a bed space, a standard treatment room or a special treatment room.

1.6 Patients will be admitted to, recover in, and be discharged from the MI&T unit. Procedures on most patients will be performed in the unit. Some procedures, however, may be performed in another department, for example the radiology department.

1.7 This volume assumes that most patients who attend the MI&T unit will be discharged on the same day as they are admitted. It is recognised, however, that patients may:

a. attend the unit from another part of the hospital during an episode of in-patient treatment;

b. be admitted to the unit knowing that an overnight stay in another part of the hospital, perhaps in a patient hotel (see, for example, 'Patient Hotels: A Quality Alternative to Ward Care'), may be necessary in order to complete recovery.

Overnight stay accommodation is not described in this volume.

Exclusions

1.8 This volume excludes guidance concerning accommodation for:

a. medical investigation and treatment procedures on children (see HBN 23 - 'Hospital accommodation for children and young people');

b. day surgery procedures (see Volume 1);

c. endoscopic procedures (see Volume 2);

d. antenatal day care assessment (see HBN 21 - 'Maternity department' (to be revised));

e. procedures usually performed in tertiary referral/ specialist centres.

1.9 This volume does not deal with accommodation for medical investigation and treatment day case procedures which is combined in a specialist unit with other elements (for example, out-patient and in-patient facilities) of hospital accommodation, although key principles will still be relevant. It is recognised, however, that project teams may consider that a comprehensive specialist unit is most appropriate in:

- facilitating patient-focused care;
- providing convenient and easy access for staff;
- responding to local demands. For example, it may be possible to make a business case for accommodation for medical investigation and treatment day case procedures associated with a specialist unit but not possible to make a case for the type of unit described in this HBN.

Capital Investment Manual

1.10 The Capital Investment Manual (England and Wales; in Scotland see 'Health Building Procurement in Scotland') contains the NHS Executive's procedural framework governing the inception, planning, processing and control of individual health building schemes. There are various mandatory requirements within this overall process but the way these tasks are carried out is mainly for NHS Trusts to determine. Approval from the NHS Executive for business cases will depend on how they intend to carry out the mandatory tasks. The Manual gives guidance on the technical considerations of the full capital appraisal process and also provides a framework for establishing management arrangements to ensure that the benefits of every investment are identified, realised and evaluated. It emphasises three key points:

- each individual scheme must be supported by a sound business case. A business case must convincingly demonstrate that the investment is economically sound (through an option appraisal) and financially viable (affordable to the Trust and its purchasers);
- an exploration of private finance alternatives should be viewed as a standard option whenever a capital scheme is being considered. Once the Outline Business Case has been approved, the preferred option should be compared to potential private finance alternatives. Approval to the Full Business Case will not be given unless there is a clear demonstration that private finance alternatives have been adequately tested;
- the delivery of a major capital project is a difficult and complex task. Nevertheless failure to deliver on time and to cost diverts resources from direct patient care. The establishment of an appropriate project organisation is essential to ensure that projects are delivered within agreed budgets and timescales.

Health Building Notes/Scottish Hospital Planning Notes 1 and 2

1.11 HBNs/SHPNs 1 and 2 are an introduction to the planning, design and construction of an acute general hospital. They will be relevant to MI&T unit project teams.

Cost Allowances

1.12 The Departmental Cost Allowance Guides (DCAGs) associated with this volume are promulgated in Quarterly Briefing (issued separately under cover of an Estate Policy Letter) on behalf of the NHS Executive.

Equipment

1.13 Equipment is categorised into four groups, as follows:

a. Group 1: items (including engineering terminal outlets) supplied and fixed within the terms of the building contract;

b. Group 2: items which have space and/or building construction and/or engineering service requirements and are fixed within the terms of the building contract but supplied under arrangements separate from the building contract;

c. Group 3: as Group 2, but supplied and fixed (or placed in position) under arrangements separate from the building contract;

d. Group 4: items supplied under arrangements separate from the building contract, possibly with storage implications but otherwise having no effect on space or engineering service requirements.

1.14 Group 1 items are included in the DCAGs associated with this volume. Equipment Cost Allowance Guides (ECAGs) specify a sum of money for the functional unit for Groups 2 and 3: a full listing of ECAGs can be found in the CONCISE 4 database (see paragraph 7.2).

Works Guidance Index

1.15 This volume contains guidance that is current at the time of publication. Specific issues, such as arrangements for dealing with fire, security, energy conservation, etc., are also covered by other published guidance which must be taken into account. It is recommended that project teams check the current edition of the Works Guidance Index and investigate the possibility of changes occurring after its publication.

2.0 General service considerations

Introduction

2.1 This chapter considers service issues related to the provision of an MI&T unit, including the need for the unit to be self-contained and dedicated; children and medical investigation and treatment; the size of a unit; and relationships with whole hospital services.

Classification of hospital patients

2.2 Hospital patients can be classified into three main categories:

a. in-patients -who stay in hospital overnight;

b. out-patients-who attend for consultations, examinations, investigations and minor procedures and leave as soon as these are finished;

c. day patients-who do not require an overnight stay but need a short period of time after a procedure for recovery. Day patients may stay in hospital for a morning, an afternoon or for the whole of the working day.

Medical investigation and treatment procedures

2.3 Appendix 1 lists specialties which might use an MI&T unit for day case procedures and, relative to each specialty, investigations and treatments for which patients may be admitted.

2.4 Most of the medical investigations and treatments listed in Appendix 1 can be performed by means of general clinical procedures, as follows:

a. injection;

b. intravenous infusion;

c. transfusion;

d. aspiration;

e. biopsy;

f. catheter drainage;

g. venepuncture;

h. venesection;

j. nasogastric intubation;

k. nebulisation.

2.5 Some of the medical investigations and treatments listed in Appendix 1 require special clinical procedures, such as:

a. urodynamics;

b. myelography;

c. fluoroscopy;

d. angiography.

2.6 It is recommended that medical investigation and treatment day case procedures required in relation to surgical specialties, for example, pre-operative assessment, are performed in accommodation staffed by doctors and nurses of the appropriate specialty who can deal fully with patient queries.

The benefits of medical investigation and treatment as a day care service

2.7 A day care service for medical investigation and treatment is considered:

a. by many patients to be preferable to an in-patient service on the grounds that:

(i) appointments may be booked and arranged in relation to the patient's domestic and work commitments;

(ii) for most patients, the service is programmed independently of other hospital services and, therefore, is more likely to remain free from disruption;

(iii) day case procedures are perceived as less threatening than in-patient procedures;

b. by clinicians to provide a discrete opportunity for scheduling similar straightforward procedures;

c. by managers:

(i) to be a cost effective and efficient use of resources;

(ii) to reduce waiting times for certain procedures and waiting lists for in-patient admissions.

The development of medical investigation and treatment services

2.8 The number of patients treated as day cases during the ten-year period since the publication of HBN

38 - 'Accommodation for adult acute day patients' in 1982 has increased dramatically, and it is expected that massive growth of day care services will be one of the most significant developments of the NHS over the next few years.

2.9 Factors which have influenced the development of day care services include:

- advances in health technology, notably in drug therapy, sedatives, anaesthetics and analgesics, medical equipment and the application of computers;
- an increasing expectation by patients for a prompt response following consultation, if required;
- the drive towards the cost effective and efficient provision of services, with reduction of waiting times and improved levels of quality.

The purpose of an MI&T unit

2.10 The MI&T unit described in this volume provides the opportunity for a hospital and unit users:

- to create an environment with its own special ethos which is appropriate for its clientele;
- to install equipment and provide facilities that are 'fit-for-purpose';
- to allow adequate programmed time for good patient care.

2.11 Many patients requiring medical investigation and treatment which can be performed as day case procedures currently receive a service which may be considered inappropriate and inadequate. Patients:

a. are admitted as in-patients, perhaps to a programmed investigation unit (see 'Lying in Wait: The Use of Medical Beds in Acute Hospitals');

b. attend an in-patient ward;

c. attend an out-patient department but:

(i) may disrupt a clinic timetable as some patients' needs are unpredictable;

(ii) need to return to the hospital for visits to other departments.

2.12 Provision of an MI&T unit, however, should not encourage work now carried out satisfactorily to be transferred from:

a. primary care to secondary care;

b. out-patient care to day care.

As many medical investigation and treatment procedures as possible should be performed in a patient's home or close to the home. Patients should need to attend an MI&T unit in an acute general hospital only for procedures which it is not appropriate to perform in a primary or community health care setting.

"One-stop" clinics

2.13 The unit may be used to accommodate appropriate out-patient clinics, that is, those clinics where it is known that an adequate proportion of the patients will require further medical investigation and/or treatment which can be performed immediately following the out-patient attendance.

Programmed investigations

2.14 The unit may be used as a programmed investigations unit for the increasing number of investigations which can be performed as day case procedures.

Open-access assessments

2.15 In addition to patients who are referred through the normal referral process, a number of patients may come to the unit independently for immediate assessment and treatment of urgent problems. Most of these patients will have attended before and be known to staff in the unit.

2.16 The assessment and treatment process may follow the sequence of events outlined below:

a. routine investigations and observations;

b. diagnosis;

c. further investigations, possibly in other hospital department(s);

d. treatment in unit.

The self-contained and dedicated MI&T unit

2.17 This volume describes an MI&T unit which:

a. is largely self-contained. Patients may be admitted to, treated in, and discharged from the unit. As indicated in paragraph 1.6, some patients may attend another department for a procedure;

b. is dedicated for medical investigation and treatment only. It is not intended that the unit should be used for:

(i) "parking" patients treated elsewhere in the hospital. Patients who do attend other departments for treatment are managed by the unit. They are admitted to, prepared in, recover in, and discharged from, the unit;

(ii) overnight stay of accident and emergency patients or overflow in-patients;

c. may be used for medical investigation and treatment procedures on in-patients.

2.18 In respect of day surgery, the Audit Commission report 'A Short Cut to Better Services', October 1990, states: "Several of the advantages of day surgery . . . rely on the provision of self-contained, dedicated day-case units". Referring to this report and to the NHSME report 'Day Surgery: Making it Happen', 1991, the National Audit Office report 'Use of National Health Service Operating Theatres in England: a Progress Report', March 1991, states:

a. "Both studies emphasised in their reports that a dedicated day unit offered the best prospect for maximising the number of patients treated and minimising the cost per patient";

b. that the NHS should "plan for more dedicated day units where these can be shown to be a good investment".

Similar rationale applies with regard to the provision of an MI&T unit.

2.19 The self-contained and dedicated MI&T unit described in this volume enables medical investigation and treatment services to be provided more appropriately than in non-dedicated facilities (see paragraph 2.11). Patients' needs are different from those admitted to/attending in-patient wards and out-patient departments.

2.20 A self-contained, dedicated MI&T unit is able to:

a. provide individualised care for patients;

b. be organisationally independent and manage its resources and workload in a planned programmed manner;

c. generate its own ethos.

2.21 The need for a self-contained and dedicated MI&T unit which is separate from accommodation for in-patients and out-patients has been expressed in paragraphs 2.10 and 2.11. It is also considered that spaces attended by patients in an Ml&T unit should be separate from other accommodation for day care, that is, the day surgery unit (see HBN 52, Volume 1) and the endoscopy unit (see HBN 52, Volume 2).

2.22 Patients requiring medical investigation and treatment present different demands to patients requiring day surgery and endoscopy, as illustrated by the following comparative table.

2.23 Provision of good care for patients requiring medical investigation and treatment calls for accommodation and staff, particularly nurses, separate and different from those for patients requiring day surgery and endoscopy. A relaxed and friendly environment should be developed so that regular attenders regard the unit in a familiar light.

Factor	Day surgery/ endoscopy	MI&T
Appointment	Fixed in advance	May attend without appointment
Clinical procedure(s)	Pre-determined	May not be known until occasion of attendance
Period of time of attendance	Known for most patients	Not known for many patients
Number of attendances for treatment episode	Usually one	Often many over long period of time

Principal activity spaces in an MI&T unit

2.24 Medical investigation and treatment may be carried out in a variety of settings. The two essential requirements are an appropriate space in which to perform the procedure and a space where patients can recover prior to discharge.

2.25 The planning and design guidance in this volume is based on the assumption that:

a. investigation and treatment are performed in a C/E room, in a bed/trolley/reclining-chair space, or in a treatment room (in the unit or elsewhere in the hospital);

b. recovery occurs in a bed/trolley/reclining-chair space and/or in a lounge.

2.26 A wide range of investigation, treatment and recovery permutations can be accommodated by the MI&T unit described in this volume. Examples are:

a. investigation, treatment and full recovery in the same space;

b. preparation, investigation, treatment, initial recovery and final recovery all staged in different areas, that is, a C/E room, a treatment room, a bed/trolley/reclining-chair space and a lounge.

2.27 Facilities required for initiating and/or carrying out most procedures in a C/E room, a bed/ trolley/reclining-chair space or a treatment room are:

a. a bed, a trolley, a reclining chair, an examination couch or an upright chair, as appropriate;

b. infusion equipment;

c. a dressings trolley, prepared for the procedure in the clean utility room.

2.28 A bed/trolley/reclining-chair space may be provided in a multi-bed room or in a single-bed room. A standard

treatment room may be required, for example, to provide a space which is dedicated for certain clinical procedures and equipped accordingly. A special treatment room may be required for dedicated purposes or to provide a particular type of environment or to accommodate special equipment.

Children and medical investigation and treatment

2.29 Medical investigation and treatment day case procedures on children should be performed in the day case unit in the comprehensive children's department (see HBN 23-"Hospital accommodation for children and young people"). Children should not need to attend the MI&T unit.

Functional unit

2.30 The functional unit used to express the functional content of an MI&T unit is 'the bed'.

Workload

2.31 Local project teams should carefully assess the workload of an MI&T unit. There are diverse views in respect of the appropriate location for carrying out medical investigation and treatment procedures, which may be influenced by the range of services provided by local primary and community health care teams. In a survey which included consultation with regard to the 72 investigations and treatments listed on Appendix 1, one organisation indicated that 49% (indicated with an asterisk in the appendix) might be performed safely and effectively in a patient's own home whereas another organisation indicated that only 4% might be performed at home.

2.32 The advances in health technology (paragraph 2.9) that are enabling patients to be treated as day patients instead of in-patients are also enabling patients to be treated outside hospital in a local setting, for example, at home or in primary and community health care premises. Provision of an MI&T unit should not discourage the devolution from secondary to primary and community care: the benefit to patients of a devolved and local service is an important consideration when planning the provision of medical investigation and treatment services.

2.33 Provision of an MI&T unit and of supplementary out-patient facilities should be justified by proof of an adequate workload.

Sizing an MI&T unit

2.34 The functional content of an MI&T unit and of supplementary out-patient facilities may be calculated as described in Appendix 2.

Functional relationships

2.35 This volume describes an MI&T unit in an acute general hospital. Locating an MI&T unit in an acute general hospital:

a. permits referral of patients to other clinical departments for investigation and treatment;

b. allows for the occasional attendance of in-patients;

c. facilitates admission of patients to an in-patient ward if necessary;

d. provides direct access to the full range of support services.

However, treatment in a unit in an acute general hospital of patients who could be treated in a primary or community health care setting is likely to be:

a. less accessible for patients and escorts;

b. less convenient for carers;

c. more expensive for purchasers of health care.

Whole hospital policies

Clinical support services

2.36 It is assumed that clinical service departments in an acute general hospital will be responsible for the provision of essential clinical services to the MI&T unit.

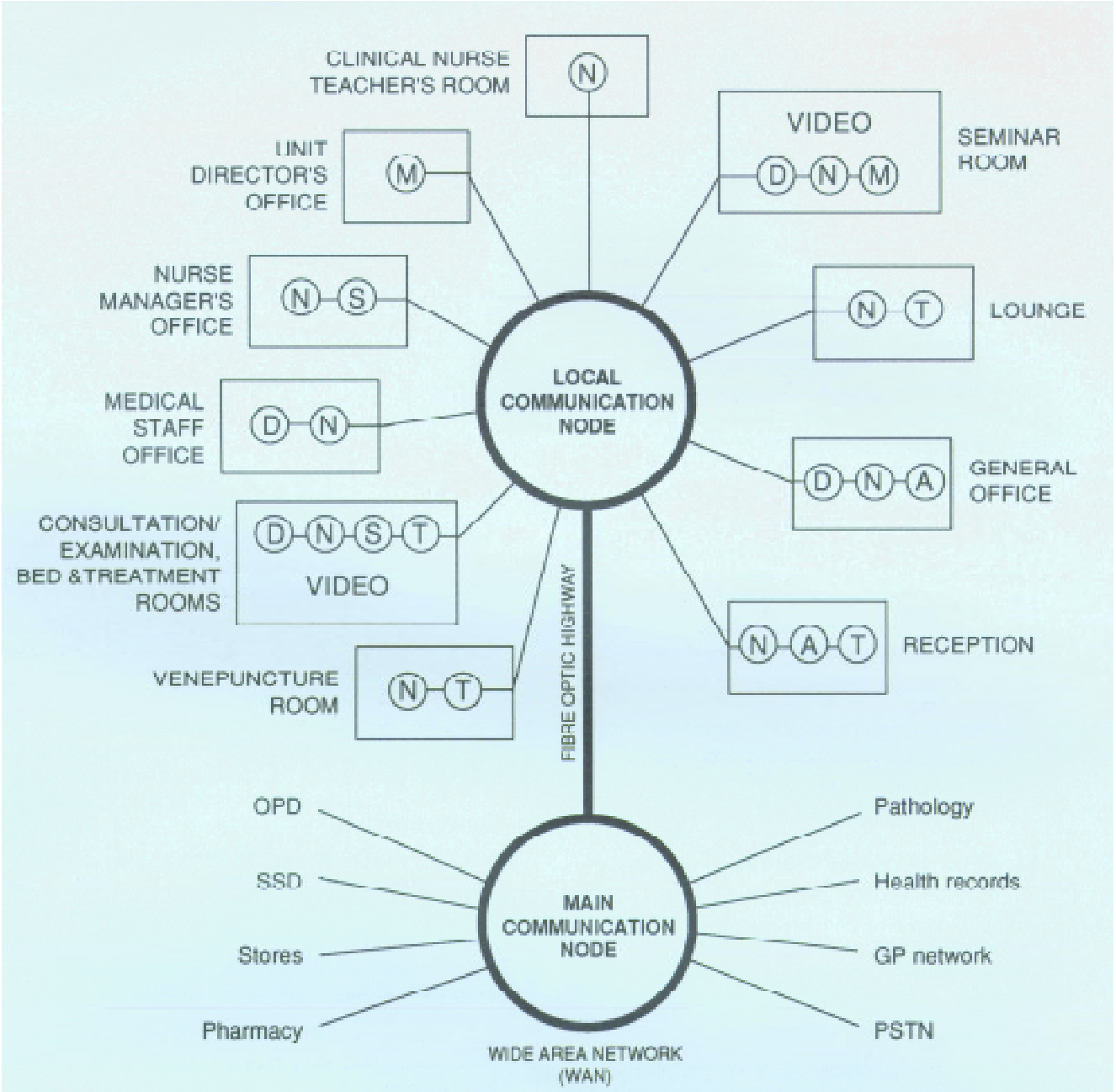
Education and training

2.37 A seminar room is required where education and training sessions can be held for staff working in the MI&T unit. The seminar room may also be used by visiting students. Local project teams may consider provision of a closed-circuit television system with full two-way audio links from treatment areas to the seminar room and facilities for videorecording. Teaching may also take place in appropriate spaces in the unit.

2.38 Additional space should be provided for the teaching of undergraduate medical students, if necessary. Reference should be made to the Department's letter DS 65/74 about teaching hospital space requirements, issued on 22nd March 1974, and letter DS 86/74 dated 27th March 1974. (In Wales, reference should be made to letter HSD 3/57/1 dated 29th April 1974.)

2.39 Teaching requiring special facilities should take place in a postgraduate medical centre, or in a hospital education centre.

Figure 1 Data and telephony network diagram – consistent with NHS Information Management and Technology Strategy



Key to data and telephony station functions

Each station will have provision for IT and telephones

(D)octor

- Appointments
- Clinical coding
- Electronic mail
- GP contact
- Health records
- Medical audit
- Orders
- Reference material
- Results
- Word Processing

(N)urse

- Appointments
- Care planning
- Community contact
- Electronic mail
- Health records
- Orders
- Patient assessment
- Results

(M)anager

- Contracting
- Decision support
- Electronic mail
- Non-clinical orders
- Stats/ activity analysis
- Word processing

(A)dministration

- Appointments
- Electronic mail
- Health records
- Non-clinical orders
- Word processing

(S)tock

- Patients appliances
- Pharmacy
- SSD
- Stores

(T)racking patients

Information management and technology

2.40 Information management and technology (IM&T) is fundamental to the successful operation of an MI&T unit. The system selected should offer a wide range of facilities, and be consistent with local and NHS IM&T strategies which may be obtained from the Publishing Department, DSS Distribution Centre, Manchester Road, Heywood, Lancashire, OL10 2PZ. A national overview of the trend towards voice and data communication networking systems is contained in 'A Strategy for NHS-wide networking' which may be obtained from the NHS Executive. More detailed guidance on local area networks (LANs) is contained in the NHS IT Standards Handbook Volume 2 which may also be obtained from the NHS Executive.

2.41 Figure 1 illustrates a comprehensive IM&T network for an MI&T unit: a glossary which explains the meaning of the terms used on the figure is included as Appendix 3. However, choice of systems and matters such as the location of computer terminals, which functions to include on the system, and access levels to information, should be determined locally. Examples of data handling needs which would be met by installation of a network such as that shown on Figure 1 include:

a. within the unit:
   - (i) maintaining the appointment system;
   - (ii) operating a patient management system;
   - (iii) managing medical investigation and treatment procedure sessions and lists;
   - (iv) providing management information, including clinical audit;
   - (v) managing materials;
   - (vi) managing statistical information, including feedback from patients, general medical practitioners and district nurses;
   - (vii) storing reference material;

b. with other hospital departments:
   - (i) making appointments from, say, the out-patients department;
   - (ii) transmitting urgent results from the pathology department;
   - (iii) ordering supplies and/or services;

c. with patients:
   - (i) confirming appointments;
   - (ii) final checking that patients still plan to attend;

d. with general medical practitioners, advising results of medical investigation and treatment and requesting follow-up visit;

e. with district nurses, requesting visit before and/or after attendance at the unit.

2.42 Project teams should:

a. consider the IM&T needs of the unit at an early stage;

b. review current IM&T developments;

c. check that proposals conform with local IM&T policies;

d. ensure that sufficient space is provided at the design stage to meet the anticipated need for special power supplies, modems, visual display terminals (VDTs), printers and associated software, stationery, and conduits for cables;

e. where necessary and if a suitable space is not available elsewhere, ensure that a room is provided within the unit to accommodate the IM&T equipment. The space requirements, temperature limits, etc., should be obtained from equipment manufacturers;

f. ensure that VDT screens are sited so that the displayed text is not visible to members of the public (although it may be considered an advantage to be able to turn the screen to enable the patient to check the accuracy of the information entered);

g. ensure that the contents of the VDT screen are legible (see paragraph 6.55);

h. ensure that equipment noise is controlled within acceptable limits and, where necessary, fit acoustic hoods or locate the equipment in a separate room;

j. ensure that adequate provision is made for the security of data and devices.

Health records

2.43 It is assumed that the health records department in the hospital will be responsible for the safe custody of case notes and for the provision of a health records service to the MI&T unit in a similar way to clinics in the out-patients department. Project teams should review and plan for the introduction of appropriate current and future developments in the context of health records whole-hospital policies, including patient-held records, unified records and electronic records.

Materials handling

2.44 Project teams should give careful consideration to supply, storage and disposal systems. The quantity and distribution of storage space can only be specified in terms of known policies.

2.45 Project teams should consider:

a. whole hospital materials handling: supplies, storage and disposal policies. The frequency of deliveries, the amount of storage space required in the unit and the delivery and storage policy of the supplying department, are interrelated. The lower the frequency of delivery, the greater the capital outlay on working

stocks and the amount of storage space required. This is particularly significant in respect of items reprocessed by the sterile services department (SD);

b. the types of item supplied, for example sterile supplies, office supplies and clean laundry;

c. delivery and collection points;

e. the volume and location of storage spaces (including spaces where items are held awaiting collection for reprocessing or disposal);

f. specialised storage requirements, for example for pharmaceutical supplies (especially Controlled Drugs).

2.46 Control of stock, which may require computer support, increases efficiency and can effect appreciable reductions in costs. The value of a departmental stores management system will be enhanced if it can be linked to an existing hospital materials handling system.

2.47 Organising an efficient and economical system for supply, storage and disposal is demanding and complex. Systems and timetables for ordering supplies, for delivery and for disposal should be devised and agreed with appropriate organisations external to the hospital and with the managers of relevant hospital departments, including hospital stores, SSD, pharmacy, laundry and portering services. Good working relationships and communications with other hospital departments are of fundamental importance.

2.48 Guidance on the disposal of clinical and infected waste is contained in "Safe Disposal of Clinical Waste'. Disposal of pressurised containers requires special attention (see SAB(88)79-"LPG Aerosol Containers: Risks arising from storage, use and disposal"). Specially constructed containers (see BS7320: 1990) should be used for "sharps", particularly needles. Use of sharps containers minimises the risk of injury to staff, particularly portering staff handling clinical waste for incineration.

Sterile services

2.49 An SSD may provide a service to the MI&T unit which includes cleaning, disinfecting and/or sterilizing specific items of medical equipment. Normally, items of medical equipment will be sent to the SSD.

2.50 Items of medical equipment should be disinfected prior to servicing. User servicing of electronic and medical engineering (EME) equipment may be carried out within the MI&T unit, but scheduled servicing should be carried out in the EME workshop (see HBN 34-'Estates maintenance and works operations').

2.51 Facilities will be required in the MI&T unit for automatically emptying, cleaning and disinfecting suction bottles.

Staff change

2.52 Staff who wear uniforms may change from outdoor clothes into hospital or unit uniforms in changing accommodation located within the unit, or elsewhere in the hospital, as determined by local policy.

2.53 This volume assumes that all staff who need to change will do so elsewhere in the hospital and that facilities required by staff within the unit will be limited to:

a. small lockers for secure storage of smallitems of personal belongings;

b. a shower;

c. a WC.

Domestic services

2.54 A domestic services manager (or equivalent if the service is contracted out) will be responsible for organising the domestic cleaning services. It is assumed that most of the work will be carried out by domestic services staff based in the unit but that some work will be carried out by a whole hospital team when the unit is closed.

2.55 Accommodation is required where cleaning equipment can be stored and cleaned, and as a base for domestic services staff. The size and content of the space will be determined by the scope and extent of the services provided from it, as determined by the whole hospital policy. The type and number of items of equipment and materials to be stored will depend upon the finishes provided, the number and deployment of domestic services staff, and the frequency of cleaning.

Catering facilities

2.56 Patients should have the opportunity to receive light refreshments, such as sandwiches or toast, and beverages, for consumption during the recovery period. Project teams should decide whether the service provided to patients should be extended to their escorts.

2.57 This volume assumes that staff will attend the hospital staff dining room for main meals but may prepare and consume snacks and beverages in the staf rest room.

3.0 General functional and design requirements

Introduction

3.1 This chapter provides planning and design guidance for an MI&T unit related to the service objectives outlined in Chapter 2. Additional guidance which is common to all health buildings is discussed in Chapter 5.

General design considerations

3.2 An MI&T unit should be planned and designed to provide patients and their escorts with high-quality facilities that will be easy for staff to manage and operate.

3.3 The design should help to assure patients that:

a. they are receiving a first-class service;

b. they matter, that is, they are cared for as individuals;

c. their needs for privacy and dignity are met.

To this end, particular attention should be paid to the visual aspects of the unit as well as functional and environmental needs.

3.4 Figure 2 illustrates key planning principles, which include simple, direct flowlines, and compact routes and spaces, that:

a. progress patients and supplies forward without unnecessary looping back;

b. eliminate cross-over circulation points;

c. reduce double-handling of patients and supplies;

d. reduce staff travel.

3.5 MI&T units planned and designed in accordance with these principles will run effectively and efficiently. Unit managers should ensure that patients are not allowed to feel that they are “on a conveyor belt” or are being treated as part of a production-line process.

Signposting

3.6 A large illuminated external sign is required by the main entrance. There should be minimal need for internal signs in an MI&T unit. A plethora of signs is a strong indication that the design and workflow concepts are wrong. Traffic flows for patients should be straightforward and self-managing.

Intradepartmental relationships

3.7 Patient-related activities in an MI&T unit fall into four main groups which occur in the following sequence:

a. reception and registration;

b. waiting;

c. consultation, examination and treatment;

d. recovery and discharge.

3.8 The types of procedures performed and the patient management system will significantly influence the design and overall area of the unit, in particular the number of:

a. chairs in the main waiting area;

b. C/E rooms;

c. bed/trolley/reclining chair spaces;

d. treatment rooms;

e. chairs in the lounge.

3.9 Project teams will need information in connection with the types of procedures and management of patients.

3.10 The time taken to perform a procedure and the time required for recovery can both vary significantly. For example, a procedure may be performed:

a. in a short period of time but recovery may take hours;

b. continuously for a day;

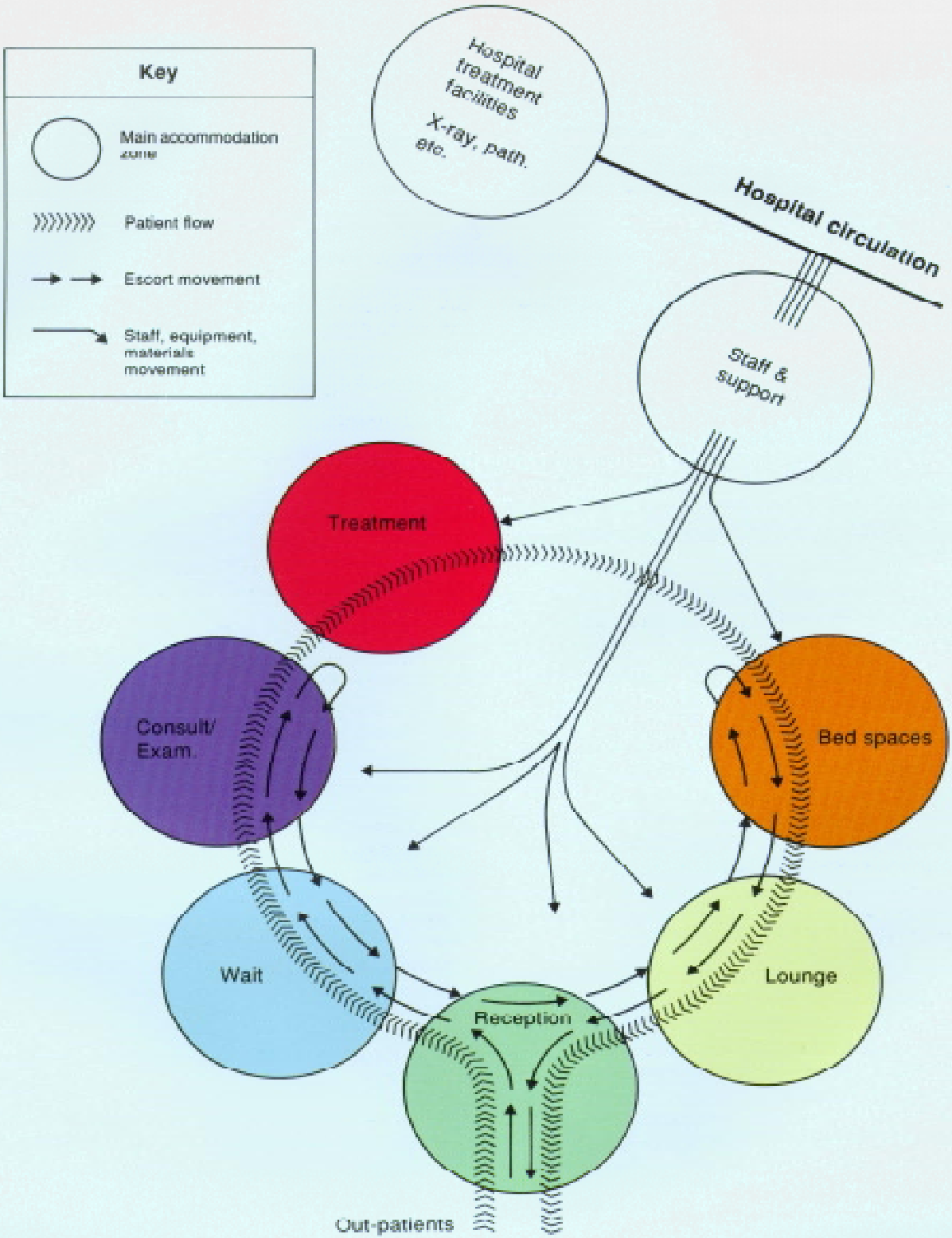
c. intermittently during a day.

3.11 The number of chairs in the main waiting area in particular is affected by the appointments system. It is recommended that patients arrive at intervals during the course of a session and not together at the beginning of a session. This may be termed “phased admission’: it has the advantages of reducing both the waiting times for patients before procedures and the size of the main waiting area.

3.12 The assumptions used to determine the areas of the mainwaiting area and the lounge included in the ‘Schedules of accommodation’ in Chapter 7 are identified in Appendix 4.

3.13 The design of the unit should facilitate uninterrupted patient movement between principal patient spaces.

Figure 2 Patient flow



3.14 Account should be taken of:

a. day patients from the MI&T unit who need a procedure to be performed in a department elsewhere in the hospital;

b in-patients who arrive from other parts of the hospital. It is assumed that they will be prepared for the procedure in an in-patient ward, attend the treatment room only in the MI&T unit, and be transferred back to the in-patient ward following the procedure;

c. patients admitted to the MI&T unit who need to be admitted to an in-patient ward.

3.15 Patients may move to and from the MI&T unit on foot, in a wheelchair, or on a trolley, and may or may not be escorted by a nurse (as well as a porter) dependent on their general condition and whether or not they have been sedated.

3.16 Consideration should be given to the factors set out in paragraphs 3.14 and 3.15 when determining the location of the treatment rooms in relation to other spaces in the unit and in relation to other parts of the hospital. A link to the main hospital circulation route should be provided to facilitate the transfer of patients between the MI&T unit and departments elsewhere in the hospital.

3.17 Ease of movement around the unit will also be necessary for staff and for handling materials. Principal flowlines should be planned to minimise clashes between the movement of patients and the movement of materials. A secondary entrance for staff and materials-handling purposes will facilitate this and may be combined with the link to the main hospital circulation route referred to in paragraph 3.16.

3.18 It is essential to preserve the privacy and dignity of patients, particularly where men and women occupy adjacent areas or share certain accommodation and circulation spaces. Appropriate spaces should provide visual and auditory privacy.

Assembly of functional parts

3.19 Three sizes of MI&T unit are included in the 'Schedules of accommodation' in Chapter 7. The main factor used to determine the size of a unit is the number of beds required (see Appendix 2). The single C/E and treatment rooms included as basic allowances in the 'Schedules of accommodation' are provided mainly in support of the beds (although they may be used for out-patient purposes-see paragraph 2.13).

3.20 Project teams intending to supplement the MI&T unit with additional C/E rooms may calculate the number required in accordance with the method outlined in Appendix 2. The same method may also be used to calculate the number of treatment rooms required. The space and area allowances for the supplementary out-patient facilities should be aggregated with those for the MI&T unit.

Environment and design

3.21 Project teams should recognise the importance of the impact on the senses and on the healing process of the external (see paragraph 3.38) and the internal environment. Pleasant environments can be therapeutic and unpleasant environments can be debilitating. Stress can be caused through loss of personal control of the environment, for example, the inability:

- to choose to be with others or alone;
- to adjust the temperature;
- to control the sound from a TV or music centre.

3.22 Designers should create an environment in the MI&T unit that is more an extension of daily life than a hospital visit. This will help patients feel at ease, be conducive to efficient working, and contribute to staff morale.

3.23 Abundant indoor planting and external landscaping are of special value in this field. Imaginative use of carpets, colour and lighting will help to produce a warm and friendly atmosphere in an MI&T unit.

3.24 The design process should include the choice of well-designed furniture and fittings and co-ordination of carpets and colour.

Art in hospitals

3.25 Works of art and craft can make a significant contribution towards the required standard of interior of an MI&T unit: this need not be limited to the conventional hanging of pictures on a wall. Every opportunity should be taken to include works by local artists and craftspeople throughout the unit. These may include paintings, murals, prints, photographs, sculptures, decorative tiles, ceramics, textile hangings and furniture.

3.26 Often it IS works of art and craft which lend special identity to reception or recovery spaces and which help give a sense of locality.

3.27 Advice should be sought from experts on:

a. the style and content of works of art. It is demonstrable, for example, that sombre and lurid scenes may have a harmful impact on some patients;

b. ensuring quality in all art and craft works;

c. selecting artists and craftspeople;

d. appropriately locating art and craft works.

Courtyards

3.28 Courtyards enable more rooms to receive natural daylight and ventilation, and provide an outlook which can compensate for the lack of a longer view. Suitable layout and planting can help to preserve privacy in surrounding rooms. Ground-cover planting is preferred to grass as it is often more successful and is easier to maintain.

3.29 Access for maintenance should be from a corridor so that patients and staff are not disturbed.

3.30 Reference should be made to HBN 45 - 'External works for health buildings' for more detailed guidance on this subject.

Natural and artificial lighting

3.31 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.

3.32 Wherever possible, spaces to be occupied by patients, escorts or staff should have natural daylight with a pleasant outside view.

3.33 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 of the MI&T unit and a non-clinical, soft environment. Use of indirect lighting in public and patient areas will assist.

3.34 Artificial lighting in patient consultation, examination, assessment, treatment and recovery areas should enable changes to a patient's skin tone and colour to be clearly defined and easily identified (see paragraphs 3.72 and 6.50).

3.35 Luminaires should not be mounted on ceilings immediately above positions where conscious patients lie on a bed, trolley or reclining chair to recover: alternative indirect luminaires should be selected.

3.36 Task lighting should be of the required intensity with low-contrast glare-free background illumination.

Location

3.37 The main locational requirement of an MI&T unit within an acute general hospital is the need for easy access for patients, escorts, staff and materials. Patients and escorts should be able to move directly into and out of the unit from the outside without entering other parts of the hospital complex and needing to use lifts and corridors.

3.38 The MI&T unit should be sited at ground level on a single floor. It should have its own external main entrance off the hospital road system for use by patients and escorts. The MI&T unit should have a clear, unique identity. Pleasant external views from spaces occupied by patients are important (see paragraph 3.21).

Planning considerations

Patients and escorts

3.39 The majority of patients and escorts will make their own arrangements for transport to and from the MI&T unit, many travelling by private car. Patients and escorts should be able to locate the unit easily from the main entrance to the hospital site.

3.40 The guidance in this volume includes facilities which enable escorts to remain with patients for most activities: on occasions, however, it will not be appropriate for an escort to be present, for example, during certain procedures. On these occasions, and also during other periods of a patient's attendance, escorts of patients may wish to leave the unit. Provision of an escort location system (similar to a "bleep" location system for members of staff) will facilitate the recall of escorts as and when appropriate.

Car parking

3.41 Car parking facilities should be provided for patients and escorts attending the MI&T unit. It is helpful if patients can be set down prior to admission and collected following discharge (particularly if they have been sedated), at a point close to the main entrance to the unit. This objective can be achieved if the car parking facilities are located:

a. close to the unit, and an adequate number of spaces can be reserved for use by patients/escorts; or

b. remote from the unit, but adequate space is provided near the main entrance where cars can be parked temporarily while escorts attend to patients.

(See also HBN 45 - 'External works for health buildings'.)

People with impairment

3.42 It is essential to ensure that suitable access and facilities are provided for people who have problems of mobility or orientation. This includes, besides people who are wheelchair-bound, those who for any reason have difficulty in walking and those with a sensory handicap such as a visual or hearing impairment. Authorities are reminded of the need to comply with the provisions of:

a. The Chronically Sick and Disabled Persons Act 1970;

b. The Chronically Sick and Disabled Persons (Amendment) Act 1976;

c. The Disabled Persons Act 1981;

d. The Disabled Persons (Services, Consultation and Representation) Act 1986;

e. The Building (Disabled People) Regulations 1991 (1992 Edition).

3.43 Attention is also drawn to BS 5810: 1979 - 'Access for the Disabled to Buildings' (under review). One of the effects of the 1981 Act is to apply this British Standard to premises covered by the 1970 Act, which includes those open to the public. Practical guidance for complying with the Building (Disabled People) Regulations is issued by the Department of the Environment under Approved Document M: 'Access for the Disabled'.

3.44 Project teams are encouraged to refer to the HBN 40 - 'Common Activity Spaces' series which gives guidance and includes ergonomic data sheets on access, space and equipment relating to people in health buildings.

3.45 It is recommended that project teams consult local representatives of people with various impairments with regard to the planning of spaces used by patients and escorts.

3.46 If public telephones are provided, the telephone handset should be fitted with an inductive coupler to assist people using a hearing aid.

Provision of WCs

3.47 WCs are required in an MI&T unit for male and female patients, escorts, staff and visitors, any of whom could have problems of mobility. In responding to these diverse needs, care should be taken to avoid the provision of an excessive number of WCs. This HBN, therefore, includes unisex wheelchair accessible WCs only for all users.

Interdepartmental relationships

3.48 Patients may be transferred between the MI&T unit and other parts of the hospital before and after medical investigation and treatment procedures. Ease of access is important: also, ideally the distance should be short.

3.49 Patients may make their own appointments at the MI&T unit immediately following an out-patient attendance. It will help patients if the unit is close to the out-patients department.

3.50 An MI&T unit will need to draw upon other hospital departments for support services. There are no critical connections that demand that the unit is located immediately adjacent to any other departments, but short logistical links and ease of access will aid efficiency.

3.51 Consideration should be given to the need for large numbers of pathological specimens to be processed quickly and regularly, to the need for urgent transmission of results of pathological investigations and for frequent supplies of blood for transfusion. Facilities may be provided for 'near-patient testing' of appropriate pathological specimens (see paragraph 4.62). Other specimens may be taken to the pathology department by porter or sent by pneumatic conveyor system (see paragraph 6.40 and HTM 2009 - 'Pneumatic conveyor systems' (in preparation). Results may be returned by computer links and confirmed by hard copy.

3.52 Provision of a secondary entrance from the main hospital circulation route will facilitate ease of access to and from other parts of the hospital for patients, staff and materials.

Comprehensive accommodation for day care

3.53 Paragraphs 1.2 and 2.2 1 to 2.23 identify the need for spaces attended by patients in an MI&T unit to be separate from other accommodation for day care. However, consideration should be given to consolidating appropriate other spaces with other day care accommodation, such as a day surgery unit, an endoscopy unit or a combined day surgerylendos copy unit. Appendix 5 of this volume outlines how the three volumes in the HBN 52 series 'Accommodation for day care,' Volume 1 - 'Day surgery unit', Volume 2 - 'Endoscopy unit' and this volume, can be used to plan and design a combined day care unit.

Phasing

3.54 Project teams should assess the size of MI&T unit required in accordance with guidance included in other parts of this volume and construct the unit in one phase wherever possible. Phased development and expansion, while not impossible, will present operational problems.

Communications

3.55 Provision of effective communication systems is essential for the efficient management of an MI&T unit. Specialist advice should be sought when systems are being considered and specified. Communication systems in four main categories are described below. See also paragraphs 2.40 to 2.42.

Telephones

3.56 Telephones should be provided as extensions from the hospital switchboard in accordance with the whole hospital policy for telephone services. Ringing telephones in and adjacent to consultation/examination/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 the general office (see paragraph 4.15).

3.57 Telephones should also be provided for use by patients and escorts (see paragraphs 3.46, 4.81 and 6.77).

Fax machine

3.58 A fax machine is required for communication with various outside agencies (see paragraph 4.15).

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

3.59 Patient-to-staff call systems should be provided in bed spaces and in all spaces where patients may be left alone temporarily, such as consultation/examination/ treatment rooms and WCs. Staff-to-staff call systems should be provided in all spaces where staff consult, examine and treat patients. Terminals to the call systems should be located at the staff base in the multi-bed room.

Staff-to-patient call system

3.60 Project teams will need to consider how patients, including those who have visual and hearing impairment, should be called for treatment from the main waiting area. Patients may be given a number as they register: when required for treatment, the patient's number may then be displayed on a digital clock in the main waiting area. This system helps to maintain patient anonymity and to ensure that patients are seen in order. Other options include announcements:

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

Security alarms

Controlled Drugs cupboard

3.61 Repeater indicator lights from the Controlled Drugs cupboard should be provided at a continuously staffed location, for example, the reception desk (see paragraph 6.58).

Fire alarms

3.62 Fire alarms should be provided in accordance with guidance referred to in other parts of this document (see paragraphs 5.4 to 5.8 and 6.12).

Internal environmental engineering considerations

Internal rooms

3.63 Internal rooms may contribute to economy in planning. If, however, additional artificial lighting and ventilation are required, both capital and running costs are likely to be increased.

3.64 Use of internal rooms should be limited to activities which:

a. demand a controlled environment; or

b. are carried out intermittently by different individuals.

3.65 Rooms that are likely to be occupied for any length of time should have natural light and natural ventilation.

Ventilation

3.66 Natural ventilation is preferred unless there are internal spaces or clinical reasons that call for mechanical ventilation, comfort-cooling systems or air conditioning.

3.67 Mechanical ventilation and comfort-cooling systems are expensive in terms of capital and running costs: planning solutions should be sought which take maximum advantage of natural ventilation. Mechanical ventilation can be minimised by ensuring that wherever practicable, core areas are reserved for rooms whose function requires mechanical ventilation irrespective of whether their location is internal or peripheral.

Noise and sound attenuation

3.68 Any unwanted sound is a nuisance, may disturb patients and staff, and should be controlled at source. Unnecessary sound insulation may be avoided by careful planning.

3.69 Telephone systems at staff bases need special consideration in respect of both noise and auditory privacy. The telephone installation should permit calls to be transferred from staff bases to a more private location.

Finishes

3.70 The quality of finishes in all areas should be of a high standard: the cost allowance makes due recognition of this need. Consideration should be given to the use of wood. Wood is durable, can be repaired, refurbished and/or replaced, and is cheaper than some alternative finishes. Guidance on the selection of finishes is provided in Health Technical Memoranda (HTMs) (see Bibliography).

3.71 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 which may cause damage should be appropriately buffered. See HTM 69 'Building components: Protection'.

Colour

3.72 Colours of surfaces in patient assessment, consulting, examination, treatment and recovery areas should not distort the colour rendering of light sources. It must be possible to define clearly and identify easily

changes to patients' skin tone and colour (see also paragraph 3.34 and paragraph 6.50).

Floors

3.73 Floor coverings and skirtings should contribute to the provision of a non-clinical environment and, at the same time, be hardwearing. They must not present a hazard nor restrict the movement of wheeled equipment. Floors should not be, nor appear to be, slippery, and the patterning should not induce disorientation. Changes of floor level should be avoided wherever possible. Surface drag, static electricity, flammability, infection hazards and impermeability to fluids have to be considered. HTM 61 should be consulted for advice on user requirements and performance selection.

3.74 Finishes should be appropriate for the activities to be carried out, restricted in variety for ease of cleaning, and compatible with agreed cleaning routines.

Doors and frames

3.75 Doors and frames are particularly liable to damage from mobile equipment, and materials which will withstand such damage should be used. All double-swing doors should incorporate clear glass vision panels, 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. Magnetic door retainers should not restrict the movement of traffic. See HTM 58 - 'Building components: Internal doorsets' and HTM 59 - 'Building components: Ironmongery'.

Windows

3.76 In addition to the various statutory requirements, the following aspects require consideration: illumination and ventilation; insulation against noise; user comfort; energy conservation; the prevention of glare; the provision of a visual link with the outside world.

3.77 Design should ensure that it is possible for cleaners to have easy access to the inside and outside of windows. Guidance on types of windows and on the safety aspects is available in HTM 55 - 'Windows'.

3.78 Windows provided in the areas where patients recover will contribute to the well-being of both patients and staff. Windows should, if possible, have a pleasant outlook.

Smoking

3.79 NHSME circular HSG(92)41 dated October 1992 - 'Towards smoke-free NHS premises' promulgated Government policy set out in the 'Health of the Nation' White Paper and required NHS authorities and provider units to implement policies so that the NHS became virtually smoke-free by 31 May 1993. The circular advises that a limited number of separate smoking rooms should be provided, where necessary, for staff who cannot give up smoking and for patients who cannot stop smoking.

3.80 No provision has been made in this HBN for staff or patients who wish to smoke.

4.0 Specific functional and design requirements

Introduction

4.1 This chapter describes in greater detail the individual spaces in an MI&T unit. Details of activities, equipment, environmental conditions and finishes are given in the Activity Data Sheets listed in Chapter 8.

Relationships of spaces

4.2 Figure 3 identifies the relationships of spaces and groups of spaces described in this chapter.

Description of accommodation

Reception

Main entrance canopy

4.3 Patients and escorts should be able to find the MI&T unit easily on arrival at the hospital. The entrance canopy may be designed to be sufficiently conspicuous to attract attention.

4.4 Ambulances may deliver and/or collect patients. The entrance canopy should therefore not only be large enough to afford adequate weather protection for patients alighting from and entering vehicles, but also be high enough to clear lights and aerials on ambulances. The space should be well lit.

Main entrance draught lobby

4.5 (See also Health Building Note (HBN) 40 (1995) - 'Common activity spaces', Volume 1, 'Public areas'.) Access to and from the main entrance to the unit should be through a draught lobby with automatic doors. The lobby should be large enough to allow people to stand aside to permit the passage of a patient accompanied by an escort and also to allow pushchairs and wheelchairs to pass. The lobby should have a floor covering which will trap dirt carried by footwear and on wheels and which can be easily cleaned.

Main entrance foyer

4.6 The foyer provides circulation space between the draught lobby and the main patient route leading to and from the reception counter. The foyer should be large enough to allow people to move about with ease, including those in wheelchairs and those using walking aids.

4.7 A wheelchair accessible WC (paragraph 4.8), a baby feeding room (if provided -see paragraph 4.9), a nappy changing room (if provided - see paragraph 4.10) and a public telephone (paragraph 4.81) should be located with entry direct from the foyer and be easily accessible to people entering and leaving the unit.

Wheelchair accessible WCs

4.8 (See also HBN 40 (1995) - 'Common activity spaces', Volume 1, 'Public areas'.) A wheelchair accessible WC should be provided with direct access from the foyer. One or two additional wheelchair accessible WCs (depending on the size of the unit) should be provided with easy access from the main waiting area and from the bed rooms and lounge. See also paragraph 3.47.

Baby feeding room

4.9 A room where a baby can be breast or bottle fed, in privacy, should have direct access from the foyer and easy access from the main waiting area, bed rooms and lounge. Seating, and facilities for the disposal of waste, are required. Hand-wash facilities should also be provided. The room may be made available to people attending other parts of the hospital if it is suitably located. Provision of a baby feeding room is a project option.

Nappy changing room

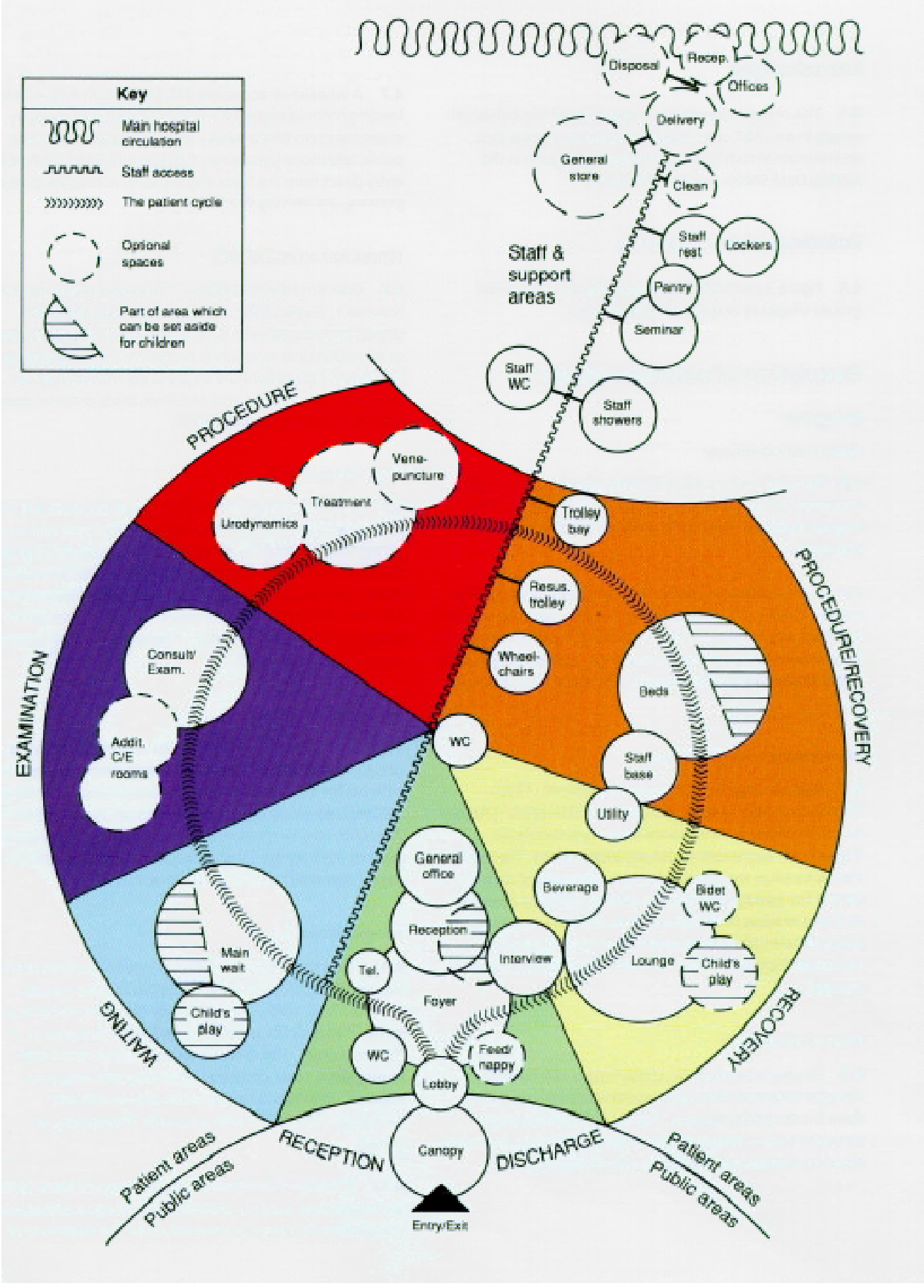
4.10 A room where a baby can have a nappy changed, in privacy, should adjoin the baby feeding room. Seating, and facilities for the disposal of soiled nappies and other waste, are required. Hand-wash facilities should also be provided. The room may be made available to people attending other parts of the hospital if it is suitably located. Provision of a nappy changing room is a project option.

Reception counter

4.11 (See also HBN 40 (1995) - 'Common activity spaces', Volume 3, 'Staff areas'.) The reception counter should provide a low, open, friendly facility that does not give any sense of a barrier or generate a feeling for the patient of "them and us". The overall impression must be of high-quality design that combines efficiency with elegance. Patients, escorts and staff must be able to talk and exchange information with ease and, if necessary, in privacy.

4.12 The main functions of receptionists will be receiving and registering patients and their escorts upon arrival and completing discharge procedures upon the departure of

Figure 3 Functional relationship diagram



patients. The receptionists will also deal with enquiries made in person, remind escorts of arrangements for collecting patients, and provide a link with nursing staff. Information on the movement of patients and their health records through the unit may be provided by means of computer links or telephone. Space will be required at the reception counter for VDTs, a working supply of stationery and office accessories, and parking a health records trolley. Care should be taken with the initiation and receipt of telephone calls concerning patients, as telephone calls are a distraction and may be inappropriate to conduct in front of patients.

4.13 The reception counter should be located and designed so that:

a. there is easy access from the foyer;

b. it is obvious to patients and escorts when entering the main waiting area;

C. seated receptionists can see all patients and escorts entering and leaving the unit and in the main waiting and play areas;

d. there is direct access to the general office;

e. a private discussion can be held between a patient and/or escort and a member of staff. Provision of an interview bay or booth may be appropriate;

f. there are two heights to the counter top:

(i) for patients in wheelchairs;

(ii) standing height for occasional writing.

4.14 The reception counter will be a focal point and should be the subject of special design consideration. Project teams may wish to use the opportunity to commission the reception counter as a crafted piece of furniture.

General office

4.15 An office is required immediately adjacent to, and opening off, the reception counter to provide the administration and communication centre of the unit. Provision of Type 5 and/or Type 6 office workstations (see HBN 18 - 'Office accommodation in health buildings') is appropriate. Duties of administrative and clerical staff may include management of the patient appointment system, issue of discharge letters, liaison with other parts of the healthcare system, preparation of reports and analysis of statistics. VDTs are required for word-processing and other computer-related activities. Consideration should be given to routing all telephone calls to and from the unit through the general office. A fax machine will be required for transmitting messages to general medical practitioners and other personnel. A working supply of stationery, and leaflets to hand to patients and escorts and for display, can be stored in cupboards in the general office.

4.16 A store should be provided in the general office where trolleys used in a health records trolley exchange service can be parked. Space is required for three trolleys, that is, for holding overnight the trolley used during the current day, and for parking one trolley for each of the following two days (thereby allowing time for the final checking and preparation of health records in the unit).

4.17 This volume assumes that a separate health records trolley is used for the health records of patients attending on one day. Accordingly, in a small MI&T unit the trolley will hold relatively few records and in a large unit the trolley will be full. In small to medium-size units, consideration might be given to storing records for two days in one trolley, thereby accommodating records for up to a week or more within the unit.

4.18 Access to health records should be limited to appropriate members of staff. It should be possible to lock the store, particularly important when the general office is not occupied.

Waiting

Main waiting area

4.19 Patients and escorts will appreciate a main waiting area which has a comfortable and relaxing environment with domestic-type finishes and furnishings. Different types of seating are required and should include those suitable for older people and children. The layout should be informal. There should be space for a patient in a wheelchair and for people using walking aids. Provision of low-level background music and/or a TV/video system may help patients relax, alleviate the boredom of essential waiting and mask confidential discussio s -or, on the other hand, may be a source of annoyance. Project teams should carefully consider all aspects of such installations, including location of equipment, volume level and control, and programme content. A supply of current reading material and leaflets about relevant clinical conditions should be available in a well-designed holder. Pin boards may be used to display information and notices about organisations helpful to patients attending the unit.

4.20 The main waiting area should have direct access from the foyer, be overseen by the reception counter and have easy access to WCs, the consulting/examination (C/E) room(s), bed rooms and treatment room(s). The main waiting area should be sized on the basis of an effective appointments system. Appendix 4 identifies the assumptions made in assessing the area included in the 'Schedules of accommodation' in Chapter 7.

4.21 The functions of the main waiting area are compatible with the functions of the lounge and, therefore, project teams may consider integrating the two spaces. See also paragraph 4.68.

Play area

4.22 A play area should be provided where children can play or read in safety. The play area should:

a. be "en-suite" with the main waiting area;

b. if possible have access to an external play area (see HBN 45 - 'External works for health buildings').

Consultation, examination and treatment

Venepuncture room

4.23 Facilities will be required for taking and testing blood specimens. Depending on local policy, specimens may be taken in a C/E room or a bed space and initial analysis performed in the dirty utility room, or a venepuncture room may be provided where both functions may be carried out. Provision of a venepuncture room, therefore, is a project option.

4.24 A venepuncture room may need to accommodate more than one patient at the same time, depending on workload. In order to preserve patient privacy and dignity in such cases, and for safety reasons (to reduce the risk of 'needlestick' injuries), the venepuncture room should include individual venepuncture cubicles.

4.25 A venepuncture room for one patient/each venepuncture cubicle will require a venepuncture chair, storage facilities for a working stock of sterile and other supplies, and clinical hand-wash facilities. Normally, the patient will be attended only by the phlebotomist. In a venepuncture room with cubicles, one cubicle should be suitable for a patient in a wheelchair.

4.26 The venepuncture room should include a worktop for portable analytical equipment and an examination couch in case it is necessary for a patient to lie down.

Consulting/examination room

4.27 (See also HBN 40 (1995) - 'Common activity spaces', Volume 2, 'Treatment areas'.) This HBN has been prepared on the basis that combined C/E rooms are preferable to separate consulting rooms and examination rooms. The combined room facilitates unbroken consultation and examination and, if there is only one door, greater acoustic privacy. The combined room has greater flexibility in use, as it may be used for either consultation, or examination, or it may be used for both. The provision of combined rooms also simplifies the present and future allocation of rooms to doctors for particular clinics.

4.28 A standard C/E room should be large enough to accommodate a doctor, a nurse, a patient (who may be in a wheelchair), and an escort.

4.29 The room will be used for consultation, examination, taking and recording of blood pressure, and for minor diagnostic and treatment procedures. Space is needed for a desk and chairs, and an examination couch, screened by curtains. There should be sufficient space within the curtained area for a patient to undress/dress in privacy, with assistance when required. The examination couch should be accessible from both sides. Space is needed for storing small items of equipment and small quantities of supplies and for a mobile adjustable inspection lamp. Clinical hand-wash facilities are required.

4.30 The layout of the room should ensure maximum privacy, especially when the door is opened. Communication doors between adjacent C/E rooms may facilitate the movement of staff, but they are not recommended as their use intrudes upon both the patient's privacy and the consultation. If they are provided, the rooms must not be used as a general traffic route.

4.31 A pair of combined C/E rooms equate in area with one consulting room and two examination rooms. Combined C/E rooms, therefore, offer greater flexibility (two doctors can consult and/or examine simultaneously) and can accommodate the same patient throughput.

4.32 Standard C/E rooms can be used by a wide range of specialties. They should not be used routinely as offices, although they can be allocated for example, as a base for a social worker for the period of a clinic.

Bed spaces

4.33 (See also HBN 40 (1995) - 'Common activity spaces', Volume 2, 'Treatment areas'.) A patient may be admitted to a bed space from the main waiting area. They may then change, securely store belongings and be examined, investigated, treated, recover in, and discharged from the bed space. Other options include examination in a C/E room prior to admission to a bed, investigation and treatment in a treatment room in the unit or in another department elsewhere in the hospital, and completion of recovery in the lounge.

4.34 Bed spaces in an MI&T unit have similar user requirements to bed spaces in an adult acute (in-patient) ward (see HBN 4 - 'Adult acute wards'). Provision of oxygen and vacuum outlets is excluded from the description in the following paragraph (4.35). However, mobile facilities should be available and may be parked in the clean utility room.

4.35 Each bed space should be provided with:

a. a variable-height bed, a bedside wardrobe, an overbed table, an easy chair and space for an additional stacking chair;

b. a bedhead luminaire;

c. a bedhead services panel incorporating:
   electrical socket-outlets;
   luminaire control switch;
   nurse call reset button/indicator lamp;
   staff/staff emergency pull switch;
   socket for patient handset;
   patient handset storage bracket;
   radio/TV stethoscope headset outlet (may be on handset control unit);

d. patient handset control unit incorporating:
   nurse call button;
   reassurance light;
   luminaire switch;
   radio/TV volume control knob;
   radio/TV selector switch.

4.36 This volume has allowed space for beds: adequate space is therefore available for reclining chairs or trolleys in lieu of beds.

4.37 Most patients will not need to undress. Even so, beds may be preferred to reclining chairs and trolleys. Beds are:

a. better for patient care. Patients with certain conditions can acquire 'bed' sores in a short period of time. This is less likely using a bed;

b. more comfortable;

c. easier to clean;

d. cheaper.

Project teams may consider that a mixture of beds, trolleys and reclining chairs is most appropriate.

4.38 Particular attention should be paid to the location of windows. Patients should have a pleasant external view when lying on a bed, a trolley or a reclining chair (see paragraph 3.21). Wardrobes should be so placed that they do not block the light or view.

Multi-bed room

4.39 Each bed space should not be less than 2.9 m x 2.5 m and be separated into bays by fixed partitions or heavy duty moveable screens. Provision of moveable screens enables patients to choose between being with others or a measure of separation and privacy (see paragraph 3.21). Windows between beds should be so located that patients do not suffer from draughts.

4.40 A multi-bed room used by male and female patients at the same time may provide therapeutic, organisational and economic advantages. However, some patients may find a mixed sex multi-bed room embarrassing and distasteful: it is essential to ensure that patient privacy and dignity is not impaired.

4.41 Options for completely separating male and female patients include:

- use of the multi-bed room for one sex and the single-bed rooms for the other sex;
- separate sessions for each sex

Project teams, when considering mixed sex occupation of multi-bed rooms, should recognise that most patients will not need to undress.

4.42 Clinical hand-wash facilities, and payphone socket-outlets for use with a telephone trolley and/or a portable telephone, should be provided in a multi-bed room.

Single-bed rooms

4.43 Single-bed rooms may be more appropriate for some patients and for some procedures and should include a bed space similar to that provided in a multi-bed room (see paragraphs 4.33 to 4.37), clinical hand-wash facilities, and a payphone socket-outlet for use with a telephone trolley and/or a portable telephone.

Staff base

4.44 (See also HBN 40 (1995) - 'Common activity spaces', Volume 3, 'Staff areas') A small staff base is required to provide a focal point for staff managing patients occupying and moving to and from the bed rooms. Facilities required include:

- a writing surface;
- communications equipment, including a telephone and a VDT and keyboard;
- storage space for a working supply of stationery;
- space for holding health records.

4.45 The staff base should be associated with, and may be located in, the multi-bed room

Treatment room

4.46 A standard treatment room provides a space where some clinical investigation and treatment can be performed which it is not appropriate to perform in a C/E room or a bed space and which does not require the facilities of a special treatment room either in the MI&T unit or elsewhere in the hospital. A standard treatment room also provides an alternative location in which to perform procedures.

4.47 Patients may be brought to the standard treatment room on a bed or a trolley, in a wheelchair or on foot: they will probably be accompanied by a member of staff and possibly an escort. The door to the standard treatment room should be wide enough to permit easy access. Door swings should not impede movement or activities within the room.

4.48 Procedures may be carried out by doctors, nurses and appropriate other staff with the patient lying on a bed, a trolley or an examination couch, sitting in a wheelchair or a chair, or standing. Access is required all round a patient. The examination couch should be mobile so that it can be moved easily to allow access to patients who need to be treated on a bed or a trolley.

4.49 The standard treatment room should be equipped with terminal units for oxygen and for vacuum, an X-ray viewing facility, a mobile examination lamp, a staff emergency call point, and clinical hand-wash facilities. Clinical quality colour rendering light sources should be provided and walls, ceilings and floors should be of suitable colour and reflectancies. The room should be sound attenuated. Natural light is preferred but not essential; mechanical ventilation should be provided to control the movement of air to and from other spaces.

4.50 A preparation area is required where sterile packs, lotions and drugs for immediate use are stored and prepared for use, and where trolleys can be prepared for use and/or held. The preparation area should be separated from the standard treatment room by means of a partition wall, with the preparation area interfacing the standard treatment room and circulation space from where entry is made.

4.51 The standard treatment room should have easy access from the C/E room(s) and bed rooms and be positioned between the clean and dirty utility rooms with direct access for staff to each from the preparation area.

Urodynamics treatment room

4.52 A urodynamics treatment room may be required where a range of bladder function studies can be performed, including fluoroscopic radiological investigations to monitor, for example, bladder pressure and urine flow, following an infusion of radioactive dye.

4.53 Patients may be brought to the urodynamics treatment room on a bed or a trolley, in a wheelchair or on foot: they will probably be accompanied by a member of staff and possibly an escort. The door to the urodynamics treatment room should be wide enough to permit easy access. Door swings should not impede movement or activities within the room.

4.54 items of equipment required for urodynamics procedures include a mobile C-arm image intensifier with a monitor on a mobile stand, a video recorder, a radio-diagnostic table or trolley, a protective apron rack, a pressure monitor, a mobile infusion stand and infusion pump, a commode with a liquid measure, and a dressings trolley.

4.55 The urodynamics treatment room should be equipped with terminal units for oxygen and for vacuum, an X-ray viewing facility, a mobile examination lamp, a staff emergency call point, and clinical hand-wash facilities. Clinical quality colour rendering light sources should be provided and walls, ceilings and floors should be of suitable colour and reflectancies. The room should be sound attenuated. Natural light is preferred but not essential; mechanical ventilation should be provided to control the movement of air to and from other spaces.

4.56 During procedures, the patient may lie on the radio-diagnostic table or trolley and a doctor, a nurse, a radiographer and a technician may be in attendance.

4.57 The urodynamics treatment room should be adjacent to the standard treatment room and include a preparation area which extends that associated with the standard treatment room.

4.58 This HBN includes alternative methods for the provision of a urodynamics treatment room: the method selected will be influenced by the workload of standard and urodynamics treatment procedures.

4.59 Method 1 involves the conversion of the standard treatment room (provided as basic accommodation) to a urodynamics treatment room and use of the converted room for both standard and urodynamic treatment procedures. The 'Schedules of accommodation' in Chapter 7 include allowances for the enlargement of the standard treatment room to enable the extra staff and equipment to be accommodated and of the general store to provide additional space for the storage of urodynamics equipment when not in use.

4.60 Method 2 involves the provision of a dedicated urodynamics treatment room additional to the standard treatment room. The urodynamics treatment room may be used for other appropriate treatment procedures when not in use for urodynamics procedures.

Clean utility room

4.61 A clean utility room is required where mobile oxygen and vacuum facilities may be parked, drugs, medicines and lotions may be stored safely and prepared, a working supply of clean and sterile supplies may be held, and dressing trolleys prepared. A Controlled Drugs cupboard, with indicating lamps (see paragraphs 6.58 and 6.59), may be located here. Clinical hand-wash facilities are required. The room should be located adjacent, and have direct access, to the treatment preparation area and be close to the bed rooms.

Dirty utility room

4.62 (See also HBN 40 (1995) - 'Common activity spaces', Volume 3, 'Staff areas'.) A dirty utility room is required where:

a. simple blood and urine tests can be carried out;

b. suction bottles can be automatically emptied, washed and disinfected;

c. bedpans, urinals and vomit bowls can be stored, prepared for use and their contents disposed of following use;

d. dressing trolleys and other items of equipment can be cleaned;

e. materials to be reprocessed and for disposal may be temporarily held.

It should be located close to the C/E room(s), bed room(s) and treatment room(s) and, if possible, adjacent to a WC and include a hatch through which specimens can be passed. Bedpans, etc., should not have to be carried through areas where patients wait.

4.63 Project teams must decide between a disposable bedpan system with bedpan macerator or a non-disposable system with bedpan washer, and plan accordingly. In making a choice, account should be taken of cost and storage needs. Additional requirements include an automatic suction bottle washer/disinfector, a sink-unit with drainer, hand-wash facilities, a worksurface, cupboards and shelves. Space should be available to park trolleys and for temporarily holding bags of linen, etc. Pedal-operated sack stands are also required. Mechanical extract ventilation should be provided.

Resuscitation trolley bay

4.64 A resuscitation trolley bay, with space for parking a resuscitation trolley (with defibrillator), a mobile suction unit and a cylinder of oxygen on a trolley, should be located close to the bed rooms and with easy access to all spaces used by patients.

Shower

4.65 Project teams may provide a shower for use by patients in localities where residential accommodation may have inadequate facilities; it may also be used by staff. The shower should be located close to the bed rooms and adjoin the WC. It is a project option.

Trolley/wheelchair bay

4.66 Trolleys and wheelchairs will be used mainly to transfer patients between the bed rooms and the treatment room(s) in the unit and elsewhere in the hospital. Wheelchairs may be used to transfer patients to the lounge. A trolley/wheelchair bay should be located close to the bed rooms.

Recovery

Lounge

4.67 A lounge, furnished with a variety of chairs and with occasional tables arranged in small, informal groups, is required where patients can complete their recovery prior to discharge. The lounge may also be used by patients having certain types of investigation and treatment. Project teams should consider the need to provide a telephone, and a VDT and keyboard, in the lounge. Patients may spend long periods of time in the lounge. 'Healthy' light refreshments and beverages prepared in the beverage bay (paragraph 4.72) may be consumed here. Easy access is required to a WC. An area where children can play safely, similar to that en-suite with the main waiting area, may be provided with the lounge. A supply of current reading material and leaflets about relevant clinical conditions should be available in a well-designed holder and pin boards to display information and notices about organisations helpful to patients attending the unit may be used in the lounge as well as, or instead of, in the main waiting area. Space may be allowed for health promotion exhibitions for patients and escorts who will have time to browse. A payphone socket-outlet should be provided for use with a telephone trolley and/or a portable telephone. Project teams may wish to consider the provision of low-level background music and/or a TV/video system in the lounge (see also paragraph 4.19). The lounge should be close to the main entrance by which patients will leave after discharge.

4.68 Patients should have a choice of environment in which to recover (see paragraph 3.21): this will be influenced by their personal preferences and clinical conditions. Some patients will wish to relax quietly, perhaps also reading, while other patients will enjoy more activity, for example, seeing people moving around, watching TV and listening to radio. Project teams should, therefore, consider subdividing the lounge into "quiet" and "noisy" areas.

4.69 Appendix 4 identifies the assumptions made in assessing the area of the lounge included in the 'Schedules of accommodation' in Chapter 7.

4.70 Project teams considering the integration of the main waiting area and the lounge (see paragraph 4.21), and the subdivision of the lounge (see paragraph 4.68), should consider the provision of a separate "quiet" integrated main waiting area/lounge and a separate "noisy" integrated main waiting area/lounge.

4.71 A well laid out external patio and/or garden provides a therapeutic environment which can be used in suitable weather by patients during treatment and recovery periods. The patio/garden should be enclosed and, if possible, have direct access from the lounge. See also paragraphs 3.28 to 3.30 and HBN 45 - 'External works for health buildings' for more detailed guidance on this subject.

Beverage bay

4.72 A beverage bay where patients, escorts and/or staff can prepare light refreshments and beverages should be provided close to the bed rooms and the lounge. Facilities

for storing crockery and cutlery and for washing-up, and a refrigerator, are required. Consideration may be given to installing a snack/beverage vending machine.

Interview room

4.73 It is expected that most confidential discussions with patients will occur in the C/E room(s). However, an interview room may be provided where extended interviews and counselling can take place in greater privacy. It should be located convenient for use by patients as they enter and leave the MI&T unit in order to facilitate easy access for pre- and post-procedure counselling. Patients and escorts may be left in the interview room to recover in privacy after counselling. The walls of the interview room should be constructed so as to attenuate sound and provide an acceptable level of speech privacy. The room should be furnished with easy chairs and an occasional table.

Office accommodation

Nurse manager's office

4.74 This office is the administrative base for the nurse manager. It should be sufficiently private for confidential discussions between staff, and for interviewing patients' escorts. The office should accommodate one Type 3 office workstation with VDT and keyboard, seating for up to three other persons, and storage for books and files.

Unit director's office

4.75 The unit director requires similar office facilities to those provided for the nurse manager. Project teams may not be able to justify provision of a unit director's office: it is included, therefore, as a project option.

Medical staff office

4.76 The medical staff office should include facilities for use by medical staff working in the unit for administrative work, confidential discussions and the dictation of case notes. Project teams may not be able to justify provision of a medical staff office: it is included, therefore, as a project option.

Facilities for staff

Staff rest room

4.77 Rest room facilities are required where staff can relax and take beverages and snacks. Project teams may determine how the total space available should be allocated. One large common room may be preferred or, alternatively and if appropriate, the total space may be divided to provide two rooms.

4.78 Rest rooms should have windows with a pleasant outlook, be comfortably furnished and include a telephone. Small lockers for the secure storage of small items of personal belongings may be located in rest rooms. Rest rooms should have direct access to the pantry.

Pantry

4.79 Pantry facilities are required for the safe handling of food, including the preparation of beverages and light snacks, for washing and storing crockery and cutlery, for storing a limited quantity of dry goods, and for the refrigerated storage of milk, etc. Equipment should include a stainless steel sink and drainer, an electric water boiler, a microwave cooker, a worktop with cupboards, an automatic dishwasher and a hand-wash basin.

Seminar room

4.80 The nature of the work in an MI&T unit is such that staff cannot easily leave the unit when it is operational. A seminar room should therefore be provided within or close to the unit for teaching, tutorials, meetings, case conferences and clinical instruction. The room may also be used as a base for a clinical nurse teacher. Furniture and equipment should include upright stacking chairs with writing arms, a wall-mounted whiteboard, a mobile X-ray viewer, a video/TV monitor, a wall-mounted display panel and facilities for storing valuable and fragile items. Closed-circuit television may be provided from treatment areas to the seminar room (see paragraph 2.37).

Support and other spaces

Public telephones

4.81 Patients and escorts may need the use of a telephone. A fixed payphone should be provided in the foyer. Payphone socket-outlets should be provided in the bed rooms and the lounge for use with a telephone trolley and/or a portable telephone. Consideration should be given to use of a payphone by a person in a wheelchair and a person with impaired hearing. The need for patients and escorts to be able to conduct telephone conversations in privacy should be recognised. See also paragraph 6.77.

General store

4.82 A general store should be provided for the storage of mobile and loose items of medical and other equipment and for general supplies. Floor space where items of mobile equipment and a linen exchange trolley can be parked, and shelving for storage, are required.

Unit cleaners' room

4.83 Space and facilities must be sufficient for parking and manoeuvring cleaning machines and for the cleansing of cleaning equipment and the disposal of fluids and used cleaning materials. Hand-wash facilities are also required. Shelving and vertical storage should not encroach on the working space or restrict access to the cleaners' sink. The

cleaners' room should be located away from the principal routes used by patients: a close relationship with any particular area within the unit is not required.

Secondary entrance

4.84 A secondary entrance to the MI&T unit preferably off the main hospital circulation route, will provide a convenient link to the hospital. Dedicating the main entrance for use by patients, escorts and visitors, the secondary entrance will facilitate:

a. access for patients to and from other clincial departments;

b. access and admission of patients from and to in-patient wards;

c. ease of access for staff;

d. delivery of supplies and disposal of waste, etc.

4.85 Access at a secondary entrance will need to be controlled. Unless the entrance is manned or overseen by a member of staff based in an adjacent space, a door security intercommunication system will be required in order to provide an appropriate level of security. The system will prevent unauthorised entry to the hospital and the unit while permitting free movement of staff. A terminal in an appropriate space in the unit will need to be connected to a terminal at the secondary entrance.

Disposal hold

4.86 A disposal hold is required where bags of soiled linen for reprocessing, SSD returns, bags of refuse for disposal and other items as appropriate can await removal by portering staff. Bagged items should be identified appropriately, using a colour-code system, in accordance with local policy.

4.87 The floor space should be clearly sub-divided in order that the types of commodity are separate from each other. This will not only assist rapid collection but should minimise the risk of items for reprocessing being accidently taken for disposal by incineration.

4.88 The hold area should be located near the exit from which collections will be made.

4.89 Project teams should examine the size of the hold in relation to the anticipated maximum load on the space, for example the largest number of bags soiled linen and refuse and SSD returns likely to be held at any one time. The maximum load will be influenced mainly by the workload of the unit and the frequency of collections. If the hold appears to be inadequate in size, consideration may be given to increasing the frequency of collection as an alternative to providing a larger hold.

Switchcupboard

4.90 A unit switchcupboard, with lockable doors, housing the main isolators and distibution fuse switchgear should be:

a. accessible directly from a circulation area (access space may be part of the circulation area);

b. sited away from water services.

4.91 The switchcupboard, where possible, should be sited within the unit. 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 trafic or the opening of adjacent doors.

5.0 Other general functional and design requirements

Introduction

5.1 This chapter contains additional guidance on aspects of function and design which are common to all health buildings.

Statutory and other requirements, including Crown immunities

5.2 The guidance takes account, as far as possible, of all statutory and other requirements in force at the time of publication, but health authorities and trusts are reminded of their responsibility for ensuring compliance with all relevant statutes, regulations, codes and standards. Advice on this is given in HC(88)6O/HC(FP)(88)29) (in Wales, WHC(89)20).

5.3 With the general removal of Crown immunity, building and planning law are legally enforceable on the NHS. Guidance on the removal of Crown immunity is given in HN(90)27/LASSL(90)15 (in Wales, WHC(91)4) in respect of a wide range of legislation.

Fire precautions

5.4 It is essential that project teams familiarise themselves with the guidance in the Firecode series of documents which together contain the Department's policy and technical guidance on fire precautions in hospitals and other NHS premises. In particular, the need for structural fire precautions and means of escape from the whole accommodation must be taken into account at the earliest possible planning stage. The key documents are HTM 81 - 'Firecode: Fire precautions in new hospitals' and its Supplement 1.

5.5 General policy, principles and key management guidance are contained in 'Firecode: Policy and principles'. Other Firecode documents include the HTM '80' series (which gives technical guidance on various building, engineering and equipment issues), and the Fire Practice Notes series (dealing with various specialist aspects of fire precautions). Existing HTMs will, in due course, be re-issued in Firecode format. The series includes 'Firecode: Directory of fire documents' which lists references to relevant legislation and relevant fire precautions guidance issued by the Department of Health and other sources, for example the Home Office.

5.6 Firecode and publications in the HTM 80 series are listed in the Bibliography at the end of this HBN.

5.7 It is important to establish during the design stage those aspects of fire safety strategy which affect the design, configuration and structure of a project. At appropriate stages of the design process, the architect and engineer should discuss and verify their proposals with the local fire authority, and ensure that the project team and all other planning staff are fully acquainted with the fire safety strategy for the design in terms of operation (staff responsibilities, etc.), equipment provision, and buildings and engineering layouts. HTM 57 to 60 give detailed information for the selection of fire-resisting building components.

5.8 The principles of fire safety apply equally to new projects and to alterations and upgrading of existing buildings.

Security

5.9 The problem of thefts of NHS property and staff and patients' valuables should be addressed. The risk to patients can be minimised by encouraging them not to bring valuables into the hospital. A security system needs to be provided for NHS property and staff valuables.

5.10 A well-managed and designed department with a pleasant ambience will help to reduce tension and latent security risks. An overt introduction of security grilles, etc may well be counter-productive.

5.11 The project team should discuss security with the officer-in-charge of the local Police Crime Prevention Department and the hospital or district security officer or adviser at an early stage in the design of the building. Fire and security officers should be consulted concurrently because the demands of fire safety and security may sometimes conflict. The attention of planners is drawn to NHS Management Executive circular HSG(92)22 - (in Wales, WHC(92)86) - about security and the revised NHS Security Manual to which it refers.

5.12 Where violent incidents are foreseeable, employers have a duty under Section 2 of the Health and Safety at Work Act to identify the nature and extent of the risk and to devise measures which would provide a safe workplace and a safe system of work. Such measures should reflect the guidance given in the Health Service Advisory Committee report 'Violence to staff in the health service', issued in 1987.

5.13 The security policy for individual departments should be compatible with that for the whole hospital.

5.14 The risk of vandalism must be assessed locally : it is an issue that is affected by the location of a hospital and the location of a department within a hospital. Designers should avoid placing easily-damaged targets for vandalism on buildings that are not used on evenings and weekends and not subject to frequent scrutiny by staff or passers-by.

5.15 Project teams should consult Health Facilities Note (HFN) 05 - 'Design against crime-a strategic approach to hospital planning'. HFN 05 recommends that only after making buildings as "safe" as possible by means of a number of design processes should consideration be given to the provision of security systems, such as electronic locking devices, alarms, closed-circuit television and other items of hardware. The HFN deals with security and the design of new and upgrading and adaptation of existing buildings, and discusses methods for risk management and audit.

Building components

5.16 The Building Components Database consists of a series of Health Technical Memoranda (HTMs) which provide specification and design guidance on building components for health buildings which are not adequately covered by current British Standards. No firms or products are listed. The numbers and titles of the HTMs in the series are listed in the Bibliography.

Upgrading or adaptations of existing buildings

5.17 The standards set out in this guidance essentially apply to the provision of accommodation by new building. However, the principles are equally valid and should be applied, so far as is reasonably practicable, when existing accommodation is being upgraded or new accommodation is being constructed within an existing building which may previously have been used for other purposes. Compromises may have to be made between Health Building Note (HBN) standards and what is possible.

5.18 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 or not key HBN requirements can be met: for example, the need for accommodation with ground level access, and the adequacy and location of all necessary support services.

5.19 If a prima facie case for upgrading emerges, the functional and physical condition of the existing building should be thoroughly examined. The check of physical and other aspects of existing buildings should include:

- availability of space for alterations and additions;
- type of construction;
- insulation;
- age of the buildings, condition of fabric, for example external and internal walls, floors, roofs, doors and windows, which may be determined by a condition survey;
- 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. Operating theatres, for example, require a minimum ceiling height. High ceilings do not necessarily call for the installation of false ceilings, which are costly and often impair natural ventilation;
- changes of floor levels to obviate hazards to disabled people;
- fire precautions;
- physical constraints to adaptation such as load-bearing walls and columns;
- planning requirements, particularly in connection with listed buildings.

5.20 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 example, 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 (see also the 'Capital Investment Manual (Business Case Guide)').

5.21 The cost of upgrading work should conform to the guidelines indicated in the Department's WKO letter (81)4 (in Wales, AW0(81)8), where deemed appropriate. Those guidelines take into consideration the estimated life of the existing building and the difference in cost between upgrading a building and new building.

6.0 Engineering services

Introduction

6.1 This chapter describes the engineering services within a self-contained and dedicated MI&T unit and how they integrate with the engineering systems serving the whole site. It does not describe the additional services required for a free-standing unit, boilers, water storage, etc. The guidance should acquaint the engineering members of the multi-disciplinary design team with the criteria and material specification needed to meet the functional requirements.

6.2 Documents referred to by number, for example,[10] are listed at the end of this chapter. They are numbered in order of first appearance. Each repeated reference retains the same number.

Model specifications

6.3 The National Health Service Model Engineering Specifications[1] are sufficiently flexible to reflect local needs. The cost allowance is based on the quality of material and workmanship described in the relevant parts of the specifications.

Economy

6.4 Engineering services are a significant proportion of the capital cost and remain a continuing charge on revenue budgets. The project design engineer should therefore ensure:

a. economy in initial provision, consistent with meeting functional requirements and maintaining clinical standards;

b. optimum benefit from the total financial resources these services are likely to absorb during their lifetime.

6.5 Where alternative design solutions are available, the consequential capital and running costs should be compared using the discounting techniques described in the Capital Investment Manual.[2]

6.6 The economic appraisal of alternative locations and design solutions should include the heat conversion and distribution losses to the point of use. Where buildings are located remote from the development's load centre, these losses can be significant.

6.7 The energy management and accounting system for this unit should be part of the hospital building management system (BMS). If a hospital system is not available, the design for this unit should be suitable for integration with a future BMS.

6.8 In view of the increasing cost of energy, the project team should consider the economic viability of heat recovery systems. Designers should ensure that those services which use energy do so efficiently.

Maximum demands

6.9 The estimated maximum demand and storage requirement, where appropriate, for each engineering service, will need to be assessed individually to take account of the size, shape, geographical location, operational policies and intensity of use of the unit. As a guide and for preliminary planning purposes only, the estimated maximum demands for a 12-bed unit are set out in the table below:

Service	Typical max. demand	Notes
Heating/ventilation/ hot water (kW)	85	
Hot water (l/s)	0.5	Storage 410 litres (2 hours recovery)
Cold water (l/s)	0.6	Storage 1050 litres (24 hour supply)
Supply ventilation (m^3/s)	0.94	
Extract ventilation (m^3/s)	0.95	Clean and dirty
Electrical (kVA)	20	Includes essential 5 kVA
Medical gases (litre/min)		
Oxygen	20	
Vacuum	20	

Activity data

6.10 Environmental and engineering technical data and equipment details are described in the Activity Data A-Sheets which are listed in Chapter 8. They should be referred to for space temperatures, lighting levels, outlets for power, telephones, equipment details, etc.

Safety

6.11 Section 6 of the Health and Safety at Work etc Act 1974,[3] as amended by Schedule 3 of the Consumer Protection Act 1987,[4] imposes statutory duties on all persons who design, manufacture, import, supply, install or erect "articles for use at work". One of the requirements of this Section is to ensure, so far as is reasonably practicable, that the article is designed and constructed so that it will be safe and without risks to health at all times when it is being set, used, cleaned or maintained by a person at work. All parts of engineering systems are covered by the term "articles for use at work".

Fire safety

6.12 The project team should familiarise themselves with Firecode[5] which contains the Department's policy and technical guidance on fire safety in hospitals and other NHS premises. In addition, the Fire Practice Note series provides guidance on specialist aspects of fire precautions.

Noise

6.13 Excessive noise and vibration from engineering services, whether generated internally or externally and transmitted to individual areas, or noise from other sources, for example speech which can be transmitted by the ventilation system, can adversely affect the operation efficiency of the unit and cause discomfort to patients and staff. The limits and means of control advocated in Hospital Design Note 4,[6] including its revisions[7] and the means of control contained in Engineering Data Sheet DH1,[8] should provide an acceptable acoustic environment.

Space for plant and services

6.14 Space for plant and services should provide:

a. easy and safe means of access, protected as far as possible from unauthorised entry;

b. for frequent inspection and maintenance. Sufficient access panels should be provided for this purpose;

c. for eventual removal and replacement of plant.

6.15 Recommended spatial requirements for mechanical, electrical and public health engineering services are contained in HTM 2023[9] (in preparation). The information in this HTM is specifically intended for use during the initial planning stages when precise dimensional details of plant are not available.

6.16 Wherever possible, the distribution of mechanical and electrical services to final points of use should be concealed in walls and above ceilings. Heat emitters should be contained within a 200 mm wide perimeter zone under window sills and critical dimensions should be taken from the boundary of this zone.

6.17 The 200 mm zone includes the floor area occupied by minor vertical engineering ducts and is included in the building circulating allowance.

6.18 Services contained in the space above the false ceiling, with the exception of drainage, should be confined to those required for the unit.

Access to control and isolation devices

6.19 Devices for control and safe isolation of engineering services should be:

a. located in circulation rather than working areas;

b. protected against unauthorised operation;

c. clearly visible and accessible, where intended for operation by the unit's staff.

Engineering commissioning

6.20 The engineering services should be commissioned in accordance with the validation and verification methods identified in the latest HTMs. Engineering services for which a specific HTM is not currently available should be commissioned in accordance with HTM 17.[10] That HTM also describes the requirements which should be included in the contract documents. Flow measurement and proportional balancing of air and water systems require adequate test facilities to be incorporated at the design stage. Guidance is also contained in a series of commissioning codes published by the Chartered Institute of Building Services Engineers (CIBSE).[11]

MECHANICAL SERVICES

Heating

6.21 Spaces heated by low pressure hot water systems should use radiators of the low surface temperature type. Surface temperatures should not exceed 43°C. Exposed hot water pipework, accessible to touch, should be insulated. Further guidance is contained in "'Safe" hot water and surface temperatures'.[12]

6.22 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 the output. There should be adequate space underneath to allow cleaning machinery to be used. Where a radiator is located on an external wall, back insulation should be provided to reduce the rate of heat transmission through the building fabric.

6.23 All radiators should be fitted with thermostatic radiator valves. These should be of robust construction and selected to match the temperature and pressure characteristics of the heating system. The thermostatic head, incorporating a tamper proof facility for presetting 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 fixed temperature.

6.24 Radiators may also be used to offset building fabric heat loss in mechanically ventilated spaces.

6.25 The flow temperature to heating appliances may also be modulated in accordance with the external ambient temperature.

6.26 Heating throughout the unit should be controlled by the building management system to "set back" temperatures to 10°C during "out-of-use" hours. A manual override should restore all plant promptly to full operational status.

Ventilation

6.27 Wherever possible, spaces should be naturally ventilated. Single and multi-bed areas will therefore normally be naturally ventilated but the treatment room and some other areas will require mechanical supply and/or extract for clinical or functional reasons.

6.28 Air movement induced by mechanical ventilation should be from clean to dirty areas, where these can be defined. The design should allow for adequate flow of air into any space having only mechanical extract ventilation, via transfer grilles in doors or walls. Such arrangements, however, should avoid the introduction of untempered air and should not prejudice the requirements of fire safety or privacy.

6.29 Mechanical ventilation should ensure that both supply and extract systems are in balance, taking due account of infiltration, where appropriate.

6.30 Fresh air should be introduced via a low velocity system and should be tempered and filtered before being distributed via high level outlets. Diffusers and grilles should be located to achieve uniform air distribution within the space, without causing discomfort to patients.

6.31 A separate extract system will be required for "dirty" areas, for example, utility and toilet facilities. It should operate continuously throughout the day and night. A dual motor fan unit with an automatic changeover facility should be provided.

6.32 External discharge arrangements for extract systems should be protected against back pressure from adverse wind effects and should be located to avoid reintroduction of exhausted air into this or adjacent buildings through air intakes and windows.

6.33 The ventilation system serving the treatment and similar rooms may be turned off during periods of non-use. However, the controls should provide for automatic reinstatement of the system via the building management system or sensors which detect the presence of staff.

6.34 Further detailed guidance is contained in HTM 2025. [13]

Hot- and cold-water services

6.35 The domestic hot water supply should be taken from the general hospital calorifier installation at a minimum outflow temperature of 60°C 2.5°C and distributed to all outlets such that the return temperature at the calorifier is not less than 50°C. Surface temperature guidance is contained in "'Safe" hot water and surface temperatures'. [12]

6.36 The requirements for the control of legionellae bacteria in hot- and cold-water systems are set out in HTM 2040. [14]

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

6.38 Further guidance on the design and installation of hot- and cold-water supply and distribution systems is contained in HTM 2027. [15]

Piped medical gases and vacuum

6.39 Treatment room(s) should be provided with oxygen and vacuum (see paragraphs 4.49 and 4.55). Further guidance on piped medical gas systems is contained in HTM 2022. [16]

Pneumatic transport

6.40 Pneumatic tube transport may provide a viable alternative to porters for moving specimens to the pathology department. Factors to be assessed will include:

a. distance, time and cost of travel between the two locations;

b. time to process specimens in the laboratory;

c. proportion of specimens which require urgent results.

6.41 The total capital and revenue cost of each option should be determined in accordance with the principles set out in the Capital Investment Manual. [2] Further guidance on pneumatic conveyor systems is contained in HTM 2009 [17].

ELECTRICAL SERVICES

Electrical installation

6.42 The installation should comply in all respects with BS7671([18])- 'Requirements for Electrical Installations' and HTM 2007.[19]

6.43 The point of entry for the electrical supply should be a switch cupboard housing the main isolators and distribution equipment. This space will also be the distribution centre for subsidiary electrical services. Whenever possible, equipment should be mounted at a height which gives easy access from a standing position. Switchgear should be lockable in the "off" position.

6.44 The electrical installation in occupied areas should be concealed using PVC-insulated cable and screwed steel conduit or trunking but, in certain circumstances, mineral-insulated metal-sheathed cables may be necessary. External installations should use PVC-insulated cables in galvanised screwed steel conduit with waterproof fittings.

Electrical interference

6.45 Care should be taken to avoid mains borne interference and electrical radio frequency interference affecting physiological monitoring equipment, computers and other electronic equipment used here or elsewhere on the site.

6.46 Guidance on the avoidance and abatement of electrical interference is contained in HTM 201 4.[20]

6.47 Fluorescent luminaires should comply with BS 5394.[21]

Lighting

6.48 Colour finishes and lighting throughout the unit should be co-ordinated to create a calm and welcoming atmosphere. Practical methods are contained in the CIBSE Lighting Guide LG2[22])- 'Hospitals and Health Care Buildings'.

6.49 Patient reading lights, in single and multi-bed rooms, should be provided for each bed (see paragraph 4.35). Each luminaire should be individually switched from the bedhead unit.

6.50 Architects and engineers should collaborate to ensure that decorative finishes are compatible with the colour-rendering properties of the lamp and that the spectral distribution of the light source is not adversely affected.

6.51 Luminaires should be manufactured and tested in accordance with the requirements specified in the relevant sections of BS4533.[23] Their location should afford ready access for lamp changing and maintenance, but with the overriding requirement that the recommended standard of illuminance is provided to the task area.

6.52 The number and location of luminaires connected to a circuit and the number of switches and circuits provided should allow flexibility in the general and local level of illumination, particularly in areas away from windows where daylight can vary significantly.

6.53 Generally, luminaires should be fitted with fluorescent lamps. Intermittently and infrequently used luminaires may be fitted with compact fluorescent or incandescent lamps.

6.54 Mobile examination luminaires, where provided, should operate at extra low voltage, be totally enclosed and be equipped with a heat filter. The temperature of external surfaces should be such as to avoid injury to patients and staff.

6.55 Where visual display terminals are to be used, the lighting should be designed to avoid bright reflections on the screen and to ensure that the contents of the screen are legible. Further guidance is contained in the CIBSE Lighting Guide LG3.[24]

6.56 The lighting of corridors, stairways and other circulation areas, which generally are not covered by Activity Data A-Sheets, should be designed in accordance with the guidance contained in HBN 40.[25]

6.57 Safety lighting should be provided on primary escape routes in accordance with HTM 2011[26] and BS5266.[27]

Controlled Drugs cupboard

6.58 A red indicating lamp should be provided on the Controlled Drugs cupboard and, where appropriate, outside the doorway of the room in which the cupboard is located and at a continuously staffed location. The lamps should be interlocked with the cupboard and the alarm system to give visual and audible indication at the continuously staffed location of unauthorised entry to the cupboard.

6.59 An indicating lamp denoting that the circuit is energised should also be fitted to each cupboard. The supply circuits for the lamps and alarm system should be derived from essential circuits. The cupboards should comply with BS 2881.([28]) Further information is contained in HTM 63. [29] More general information is contained in HC (77) 16[30] (in Wales, WHN (77) 32.)

Socket-outlets and power connections

6.60 Sufficient 13 amp switched and shuttered socket-outlets, connected to ring or spur circuits, should be provided to supply all portable appliances likely to be used simultaneously. The installation of twin outlets should be considered where activities occur in juxtaposition.

6.61 To enable domestic cleaning appliances with flexible leads (nine metres long) to operate over the whole of the unit, switched socket-outlets should be provided in corridors and in individual rooms where considered necessary.

6.62 Appliances requiring a three-phase supply, or those rated in excess of 13 amp single phase, should be permanently connected to separate fused sub-circuits. The sub-circuits should be fed from the distribution board and terminate at a local isolator. Fixed appliances, less than 13 amp rating, should be permanently connected to a double-pole switched 13 amp spur outlet. The spur outlet should contain an indicating light where appropriate and a suitable fuse. A spur outlet will be required in the main entrance draught lobby for the automatic doors.

6.63 Isolation switches should be provided adjacent to all engineering plant and equipment for use by maintenance staff.

6.64 Heating appliances and automatic equipment should have indicator lights to show when they are energised. Such indicators should be contained in the control panel of the apparatus, in the control switch or in the socket-outlet from which the apparatus derives its supply.

6.65 Where feasible, socket outlets in consultation/ examination/treatment areas should be connected such that a supply is available from at least two separate circuits of the same phase.

6.66 Socket outlets should be connected to essential circuits in accordance with the guidance contained in HTM 2011.[26]

6.67 Advice on the power supply and requirements for fixed and mobile radiodiagnostic equipment is contained in HTM 2007.[19]

6.68 The electrical supply connections to all medical electrical equipment should comply with BS EN 60 601-1 - 2:1993.[31]

Emergency electrical supplies

6.69 Guidance on emergency electrical supplies is contained in HTM 2011.[32]

Secondary entrance security system

6.70 A secondary entrance door security system may be required (see paragraphs 4.85 and 5.15). Where appropriate, it should provide for verbal communication with, and an electro-magnetically operated door lock to be controlled from, the reception desk.

Staff location system

6.71 The hospital staff location system should be extended to include this unit. Further guidance is contained in HTM 2015[32] - 'Bedhead Services', 1995.

Patient/staff and staff/staff call systems

6.72 The patient/staff and staff/staff call systems may be hard wired or radio systems. In all cases they must be electromagnetically compatible.

6.73 Patient/staff call points should be provided in all bed spaces (see paragraph 4.35) and in all spaces where patients may be left alone temporarily, such as consultation/ examination/treatment rooms and WCs. Each call unit should comprise a push button or pull cord, reassurance lamp and reset unit. The audible alarm signal initiated by patients should operate for one-second at ten-second intervals with corresponding lamps lit continuously until cancelled.

6.74 Staff/staff call points should be provided in all spaces where staff consult, examine and treat patients. Call units should generally comprise a switch (pull to call, push to reset) and reassurance lamp. The audible alarm signal initiated by the staff should operate intermittently at half-second intervals with corresponding lamps flashing on and off at the same rate.

6.75 A visual and audible indication of operation of each system should be provided at the staff base to give responding staff unambiguous identification of the call source. Further guidance is contained in HTM 2015,[32] 1994/95.

Telephones

6.76 Central telephone facilities for internal and external calls will normally be available and should be extended to serve this unit. Calls should be routed through the general office (see paragraphs 3.56 and 4.15). Telephones will normally be of the desk pattern.

6.77 A coin and/or card-operated payphone, depending on local policy, should be provided in the main entrance foyer (see paragraph 4.7). Payphone socket outlets should be provided in the bed rooms and the lounge (see paragraphs 4.42, 4.43 and 4.67). See also paragraph 4.81.

6.78 Further guidance on telephone systems is contained in HBN 48 - 'Telephone Services'[33] and HTM 2055.[34]

"Next patient" call system

6.79 The options are set out in paragraph 3.60. "Telephone voice paging" public address systems may be relatively expensive and therefore a simple self-contained public address system or a next patient visual/buzzer system may be more suitable.

Data links

6.80 Conduits will be required for cables to interconnect electronic equipment. The extent to which these conduits should link all workstations in this unit to the main hospital system or elsewhere will depend on the local policy for automatic data processing. See also 'Information management and technology', paragraph 2.40. Conduits may also be required to link closed-circuit television between the seminar room and treatment areas (see paragraphs 2.37 and 4.80).

Electric clocks

6.81 Clocks may be impulse, synchronous or battery/quartz type. The flexibility and capital/revenue cost of each system should be assessed in accordance with the principles set out in the Capital Investment Manual.[2] They should be installed only where they can be viewed by a number of staff, patients or visitors.

Music and television

6.82 Conduits for television/video and background music system outlets may be provided to the main waiting area and the lounge (see paragraphs 4.19 and 4.66).

Lightning protection

6.83 Protection of the building against lightning should be **provided in accordance with** HTM **2007**[19] **and** BS6651: 1992.[35]

INTERNAL DRAINAGE

General

6.84 The primary objective is to provide an internal drainage system which:

a. uses the minimum of pipework;

b. remains water and air tight at joints and connections;

c. is sufficiently ventilated to retain the Integrity of water seals.

Design parameters

6.85 The general design should comply with the relevant British Standards and Codes of Practice, including BS5572[36] and the current building regulations, Recommendations for spatial and access requirements for public health engineering services are contained in HSE Data Sheet EA5.[37]

6.86 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 considerations, usually limit the minimum gradient to about 1:50 (20 mm/m). For larger pipes, for example 100 mm diameter, the gradient may be less, but this will require workmanship of a high standard if an adequate self-cleaning flow is to be maintained. It is not envisaged that pipes larger than 100 mm diameter will be required within interfloor or ground floor systems serving this unit.

6.87 Provision for Inspection, rodding and maintenance should ensure "full bore" access and be located to minimise disruption or possible contamination. Manholes should not be located within this unit.

References

(1) **National Health Service Model Engineering Specifications.** NHS Estates, 1993, 1995 (2 vols electrical, 2 vols mechanical).

(2) **Capital Investment Manual:**

Overview. NHS Executive, HMSO, 1994.

Project organisation. NHS Executive, HMSO, 1994.

Private finance guide. NHS Executive, HMSO, 1994.

Business case guide. NHS Executive, HMSO, 1994.

Management of construction projects. NHS Executive, HMSO, 1994.

Commissioning of a health care facility. NHS Executive, HMSO, 1994.

IM&T guidance. NHS Executive, HMSO, 1994.

Post project evaluation. NHS Executive, HMSO, 1994.

(3) **Health and Safety at Work etc Act 1974.** HMSO, 1974.

(4) Consumer Protection Act 1987. HMSO, 1987.

(5) Firecode includes:

Firecode: policy and principles. NHS Estates, HMSO, 1994.

Firecode: directory of fire documents. Department of Health, HMSO, 1987.

HTM 81 - Fire precautions in new hospitals. DHSS, HMSO, 1987.

HTM 81 - Fire precautions in new hospitals Supplement 1. NHS Estates, HMSO, 1993.

HTM 82 - Firecode: alarm and detection systems. NHS Estates, HMSO, 1989.

HTM 83 - Fire safety in healthcare premises: general fire precautions. NHS Estates, HMSO, 1994.

HTM 85 - Fire precautions in existing hospitals. NHS Estates, HMSO, 1994.

HTM 86 - Fire risk assessment in hospitals. NHS Estates, HMSO, 1994.

HTM 87 - Firecode: textiles and furniture. NHS Estates, HMSO, 1993.

(6) Noise control (Hospital Design Note 4). Ministry of Health, HMSO, 1966 (out of print).

(7) Health services management: Hospital Design Note 4 (noise control): amendments to appendices II, IV and VIII (HN(76)126). DHSS, 1976.

(8) Noise vibration (Engineering Data Sheet DH 1.2). DHSS, 1977.

(9) HTM 2023 -Accommodation for plant and services. NHS Estates, HMSO, 1995.

(IO) **Health building engineering installations: commissioning and associated activities (HTM 17).** DHSS, 1978 (out of print).

(11) **Chartered Institute of Building Services Engineers (CIBSE) Commissioning codes:**

Series A: Air distribution systems. CIBSE, 1971.

Series B: Boiler plant. CIBSE, 1975.

Series C: Automatic control systems. CIBSE, 1973.

Series R: Refrigeration systems. CIBSE, 1991.

Series W: Water distribution systems. CIBSE, 1989.

(12) **Health Guidance Note - "Safe" hot water and surface temperatures.** NHS Estates, HMSO, 1992.

(13) **HTM 2025 -Ventilation of healthcare premises.** NHS Estates, HMSO, 1994.

(14) HTM 2040 -The control of legionellae in healthcare premises - a code of practice. NHS Estates, HMSO, 1993.

(15) **HTM 2027 - Hot and cold water supply, storage and mains services.** NHS Estates, HMSO, 1995.

(16) HTM 2022 - Medical gas pipeline systems. NHS Estates, HMSO, 1994.

(17) **HTM 2009 - Pneumatic air tube transport systems.** NHS Estates, HMSO, 1995.

(18) **BS7671: 1992 Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition.** British Standards Institution.

(19) **HTM 2007 - Electrical services: supply and distribution.**

(20) HTM 2014- Abatement of electrical interference.

(21) BS5394: 1988 Specification for limits and methods of measurement of radio interference characteristics of fluorescent lamps and luminaires. *(AMD 6581, 8/90).* British Standards Institution.

(22) CIBSE Lighting Guide: Hospitals and health care buildings (LG2). Chartered Institution of Building Services Engineers (CIBSE), 1989.

(23) BS4533 Luminaires. British Standards Institution.

(24) CIBSE Lighting Guide: Areas for visual display terminals (LG3). Chartered Institution of Building Services Engineers (CIBSE), 1989.

(25) HBN 40 -Common activity spaces (4 volumes). NHS Estates, HMSO, 1995.

(26) HTM 2011 - Emergency electrical services.

(27) BS 5366 Emergency lighting:

Part 1: 1988 Code of practice for emergency lighting of premises other than cinemas and certain other specified premises used for entertainment. British Standards Institution.

(28) BS 2881:1989 Specification for cupboards for the storage of medicines in health care premises. *(AMD 6919, 4/92).* British Standards Institution.

(29) HTM 63 - Building components: Fitted storage systems. NHS Estates, HMSO, 1989.

(30) Concode: contracts and commissions for the NHS Estates: policy. NHS Estates, HMSO, 1993.

(31) BS EN 60601 - 1 - 2: 1993 Collateral standard. Electromagnetic compatibility. Requirements and tests. British Standards Institution.

(32) HTM 2015 - Bedhead services. NHS Estates, HMSO, 1994.

(33) HBN 48 -Telephone services. NHS Estates, HMSO, 1990.

(34) HTM 2055 - Telecommunications (telephone exchanges). NHS Estates, HMSO, 1994.

(35) BS6651: 1992 Code of practice for protection of structures against lighting. British Standards Institution.

(36) BS5572: 1994 Code of practice for sanitary pipework. British Standards Institution.

(37) Plumbing and public health: Vertical drainage (Engineering Data Sheet EA 5.1/10). DHSS, 1975.

Horizontal drainage (Engineering Data Sheet EA 5.11/19). DHSS, 1978.

7.0 Cost information

Introduction

7.1 For all types of health building, it is important that building costs and revenue expenditure are kept as low as possible consistent with acceptable standards. In applying the guidance in this document to determine a detailed design, the need for economy should always be of concern and the activities should be carefully considered so that, where 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, Health Building Notes (HBN) provide a synopsis of accommodation for health buildings which the Department of Health recommends for the provision of a given service.

Departmental Cost Allowance Guides

7.2 Departmental Cost Allowance Guides (DCAGs) related to this volume are officially notified in Quarterly Briefing published by NHS Estates. A full listing of all DCAGs is available via CONCISE 4 database. For those who do not have access to the CONCISE suite computer software, a hardcopy listing of CONCISE 4, together with guidance notes, can be obtained from NHS Estates. Further information can be obtained from NHS Estates, telephone 0113-2547000.

7.3 The attention of project teams is drawn to guidance given in the 'Capital Investment Manual (Business Case Guide)' published by HMSO. 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 health care delivery. This new process is intended to reduce unnecessary and often expensive planning work which may subsequently prove to be abortive and emphasises the necessity for a sound business case in support of the capital expenditure involved. The Capital Investment Manual also defines that the capital works estimate of the intended scheme must be based on, wherever applicable, industry norms such as the DCAGs plus a percentage to cover for on-costs.

7.4 The DCAGs for this volume reflect the total building and engineering requirements related to a new build self-contained, dedicated MI&T unit in an acute general hospital where the common use of services will be available. Project teams should note that, if a stand-alone unit is provided, then additional facilities to those described in this volume will be necessary. Accordingly, suitable amendments should be made to both the 'Schedules of accommodation' and the relevant DCAGs.

7.5 It is also important to bear in mind that an allowance for on-costs, that is, for external works, external engineering services, abnormals, etc., should be added to the DCAGs for this unit. The abnormals will largely be determined by the characteristics of the site, such as an inner-city location, or the condition and type of the existing building if refurbishment is the only option.

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

7.7 DCAGs are exclusive of VAT, building and planning fees and all local authority charges, and are based on a locational factor of one.

Locational factors

7.8 Locational factor adjustments may be applied to the works costs (that is the total of the DCAGs, plus the requisite on-costs) to take into account the local market conditions. For further information, reference should be made to the regional location factors in Quarterly Briefing published by NHS Estates.

Functional units

7.9 The functional unit for an MI&T unit **'the bed'.** Three sizes, with six, 12 and 18 beds, have been costed. The activity spaces and areas used for costing are listed in the 'Schedules of accommodation' at the end of this chapter.

7.10 A method for calculating the number of beds is detailed in Appendix 2.

Essential Complementary Accommodation

7.11 Essential Complementary Accommodation (ECA) comprises activity spaces which are essential to the running of the unit but which, in certain circumstances, may be available in a convenient location elsewhere. The amount of ECA which will need to be provided as part of an individual project will therefore vary according to the extent of the provision elsewhere. The ECA costed in this volume is listed in the 'Schedules of accommodation' at the end of this chapter.

Optional Accommodation and Services

7.12 This volume, where appropriate, draws attention to project options for providing services or facilities, including the likely cost implications. This information will enable project teams to select the solution which is most suitable to their needs. The Optional Accommodation and Services (OAS) costed in this volume are listed in the 'Schedules of accommodation' at the end of this chapter.

7.13 Provision has been made by way of OAS for the accommodation required in respect of Methods 1 and 2 detailed in paragraphs 4.59 and 4.60.

7.14 If Method 1 is adopted, then the 'Additional Treatment Facilities' activity spaces should be included.

7.15 If Method 2 is adopted, then the activity space for the 'Urodynamics treatment room' should be included.

Dimensions and areas

7.16 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 the 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 Health Building Note 40 - 'Common activity spaces' series.

7.17 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 cost allowances are included at the end of this chapter.

7.18 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.

7.19 Another important factor affecting the area requirement is the timetabling of those services offered by the MI&T unit. A unit that runs an efficient appointment system requires less space for waiting than one which does not. Also a unit with a good operational policy which attempts to rationalise the use of spaces for consultation, examination and interview, can function with fewer clinical rooms.

7.20 Planning of the building efficiently may also necessitate variation of areas. For instance, in the refurbishment or conversion of older property:

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

Circulation

7.21 Space for circulation, as well as including space for all corridors, also includes a 5% allowance for planning, a 3% addition for an engineering zone adjacent to the external walls, all small vertical ducts and spaces occupied by partitions and walls. These areas are all included and therefore costed in the DCAGs.

7.22 It is also important to remember that the circulation figures included in the DCAGs for this volume 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 adjustment may be necessary.

Communications

7.23 Staircases and lifts are not included in the DCAGs relevant to this unit. Costs related to these elements, along with a suitable space standard allowance, should be included in the on-costs. For further information, reference should be made to HBN 40 - 'Common Activity Spaces'.

Land costs

7.24 As is the norm for DCAGs, costs are exclusive of all land costs and associated fees. However, project teams are advised that costs associated with these should be included in the business case submission, as detailed in the Capital Investment Manual, and could therefore be an important part of the overall cost viability of the scheme.

Engineering services

7.25 The following engineering services, as described in Chapter 6 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 unit.

Mechanical services	
Heating	Low-pressure hot-water system with thermostatic radiator control, maximum touch temperature 43°C
Ventilation	Mechanical supply and extract to meet clinical and functional requirements of the unit (includes a share of the central ventilation plant)
Cold-water service	Supplied from a central storage system to service points and includes drinking water and hose reels. Storage tanks are therefore not included
Hot-water service	Supplied from a central storage system. Storage is not included
Medical gases	Piped supplies of oxygen and vacuum to treatment room(s)
Electrical services	
Departmental distribution switchboard	
Lighting system	General lighting as required by tasks. Fluorescent, tungsten, safety and emergency luminaires as appropriate
Power system	Socket-outlets and other power outlets for fixed and portable equipment and a supply to the automatic doors
Standby and safety installation from the main hospital supplies	
Supplementary equipotential earth bonding	
Alarm system	Fire, security, medical gases and drug cupboard
Clocks (wired system)	
Staff/staff and patient/staff call systems	
Staff location	Extension from hospital system
Telephone	Conduits, cabling and outlets, but excluding instruments (hand-sets, payphones, etc.)
Data transmission	Conduits only
Radio, TV and music	Conduits only to waiting and lounge areas

Equipment (Group 1)
X-ray viewers in treatment room(s)
Controlled drugs cupboard
Bed-pan washer
Washer/disinfector
Water boiler
Dishwasher

Schedules of accommodation

7.26 The following schedules are based on the text in Chapters 3 and 4, and are illustrative of the acceptable accommodation for the functional units detailed.

Schedules of accommodation

Para. No	Activity space	Space area m²	6 Beds Qty	6 Beds Total area m²	12 Beds Qty	12 Beds Total area m²	18 Beds Qty	18 Beds Total area m²
	Entrance and reception			-		-		-
4.5	Draught lobby	11.0	1	11.0	1	11.0	1	11.0
4.11	Reception		1	9.5	1	13.5	1	13.5
4.15	General office	14.0	1	14.0	1	14.0	1	14.0
4.16	Records trolley store	2.5	1	2.5	1	2.5	1	2.5
4.19	Main waiting		1	20.0	1	31.0	1	31.0
4.22	Play area		1	13.0	1	13.0	1	13.0
4.8	Wheelchair wc - type 5	4.5	1	4.5	1	4.5	1	4.5
	Patient investig. & treatmt spaces			-		-		-
4.27	Consulting/examination room	16.5	1	16.5	1	16.5	1	16.5
4.44	Staff base	4.5	1	4.5	1	4.5	1	4.5
4.39	Multi-bed room (4 beds)	40.0	1	40.0	2	80.0	3	120.0
4.43	Single-bed room	11.5	2	23.0	4	46.0	6	69.0
4.46	Treatment room	12.5	1	12.5	1	12.5	1	12.5
4.66	Trolley/wheelchair bay	5.0	1	5.0	1	5.0	1	5.0
4.73	Interview room	7.0	1	7.0	1	7.0	1	7.0
	Patient recovery areas			-		-		-
4.67	Lounge		1	22.0	1	27.5	1	35.0
4.72	Beverage bay		1	8.0	1	8.0	1	8.0
	Sanitary facilities			-		-		-
4.8	Wheelchair wc - type 5	4.5	1	4.5	1	4.5	2	9.0
	Staff facilities			-		-		-
4.77	Staff rest room		1	10.0	1	16.0	1	18.5
4.79	Pantry	6.0	1	6.0	1	6.0	1	6.0
4.74	Nurse managers office	9.0	1	9.0	1	9.0	1	9.0
	Support spaces			-		-		-
4.64	Resuscitation trolley bay		1	2.0	1	2.0	1	2.0
4.61	Clean utility room	10.0	1	10.0	1	10.0	1	10.0
4.62	Dirty utility room	6.5	1	6.5	1	6.5	1	6.5
4.82	General store		1	12.0	1	18.0	1	24.0
4.86	Disposal hold		1	6.0	1	8.0	1	12.0
4.90	Switch cupboard		1	2.0	1	4.0	1	6.0
	Net total			281.0		380.5		470.0
	ADD - planning provision		5%	14.1	5%	19.0	5%	23.5
	Total			295.1		399.5		493.5
	ADD - engineering zone		3%	8.9	3%	12.0	3%	14.8
	ADD - circulation		27%	79.7	27%	107.9	27%	133.2
	Total			383.6		519.4		641.6
	Departmental areas			385.0	**m²**	520.0	**m²**	640.0

Essential Complementary Accommodation

Para. no	Activity space	Space area m^2	5% Planning m^2	3% Engineering m^2	27% Circulation m^2	Total area m^2
4.80	Seminar room	**20.0**	**1.0**	**0.6**	**5.9**	**28.0**
4.65	Shower - type 4	**3.0**	**0.2**	**0.1**	**0.8**	**4.0**
4.83	Unit cleaners room	7.0	0.4	0.2	1.9	9.0

Optional Accommodation and Services

Para. no	Activity space	Space area m^2	5% Planning m^2	3% Engineering m^2	27% Circulation m^2	Total area m^2
	Patient investgn & treatmt space		-	-	-	-
4.27	Consulting/examination room	**16.5**	**0.8**	**0.5**	**4.7**	**23.0**
4.46	Treatment room	**13.5**	**0.7**	**0.4**	**3.9**	**19.0**
4.52	Urodynamics treatment room	22.5	**1.1**	**0.7**	**6.2**	**31.0**
	Add. treatmt facil.(extra over area)		-	-	-	-
4.59	Treatment room	10.0	**0.5**	**0.3**	**2.7**	**14.0**
4.59	General store	10.0	**0.5**	**0.3**	**2.7**	**14.0**
	Miscellaneous spaces		-	-	-	-
4.75	Unit directors office	**9.0**	**0.5**	**0.3**	**2.8**	**13.0**
4.76	Medical staff office	**11.0**	**0.6**	**0.3**	**3.1**	**15.0**
4.67	Play area - in lounge	**7.5**	**0.4**	**0.2**	**1.9**	**10.0**
4.8	Wheelchair wc - type 5	4.0	**0.2**	**0.1**	**1.2**	**6.0**
4.9	Baby feeding room	5.5	**0.3**	**0.2**	**1.6**	**8.0**
4.10	Nappy changing room	4.0	**0.2**	**0.1**	**1.2**	**6.0**
4.65	Shower - type 4	**3.0**	**0.2**	**0.1**	**0.8**	**4.0**
4.23	Venepuncture room - 1 bay	8.0	**0.4**	**0.3**	**2.3**	**11.0**
4.23	Venepuncture room - 2 bay	16.0	**0.8**	**0.5**	**4.7**	**22.0**
4.23	Venepuncture room - 3 bay	24.0	**1.2**	**0.8**	**7.0**	**33.0**

8.0 Activity data

Introduction

8.1 "Activity data" is an information system developed to help project and design teams by defining the users' needs more precisely. This information constitutes the computerised Activity DataBase, up-dated twice yearly. It comprises three types of information sheet: activity space data sheets (known as A-Sheets), their supporting activity unit data sheets (known as B-Sheets) and A-Sheet component listings (known as D-Sheets).

8.2 A-Sheets record in more detail than is described in this Health Building Note (HBN) each task or activity that is performed in a particular activity space (which may be a room, space, corridor or bay), together with environmental conditions and the technical data necessary to enable the activities to be performed. Each A-Sheet also contains a list of the titles and code numbers of the relevant B-Sheets.

8.3 B-Sheets provide narrative text and graphics to scale relating to one activity. They show equipment fitted or supplies as part of the building, and the necessary engineering terminals.

8.4 D-Sheets provide information about the total quantities of components (excluding those in Group 4 - see paragraph 1.13) extracted from all B-Sheets selected for inclusion in an individual A-Sheet.

8.5 Activity data is only available in the form of magnetic media, but this may be used to generate paper copies where required.

8.6 Further information about the use and preparation of activity data can be obtained from NHS Estates, Department of Health, 1 Trevelyan Square, Boar Lane, Leeds LS1 6AE.

Activity data applicable to this Health Building Note

8.7 The A-Sheets recommended for the activity spaces described in this HBN are either new sheets, amended ones or selected from existing sheets. A list of A-Sheet code numbers and titles is given at the end of this chapter.

8.8 Further activity data sheets may be selected, or drawn up by project teams to their own requirements, for any services not described in the HBN or included in the list.

8.9 In order to ensure consistent and economic provision, variations from the A-Sheets recommended for the spaces covered in this HBN should be considered only where it has been decided that the function of a space will differ substantially from that described.

Lists of activity data A-Sheets

8.10 The activity data A-Sheets listed below may not carry a title identical to the activity spaces detailed in this HBN. Use of the appropriate A-Sheet code number will, however, result in the correct activity space being accessed.

8.11 The activity data A-Sheets are listed below in the same order as the spaces to which they relate are described in Chapter 4.

8.12 Some of the A-Sheets listed below relate specifically to a medical investigation and treatment unit of a certain size. For smaller or larger sizes of department the A-Sheets will need to be amended as appropriate.

Note: The foregoing applies to the MS-DOS application only.

During the currency of this HBN a MS Windows application is being introduced with the following consequences:

A-Sheets are replaced by room data sheets.
B-Sheets are replaced by assemblies.
The term 'D-Sheets' is omitted from component listings.

Activity space	A-Sheet code number	Paragraph number in HBN
1. Main entrance: entrance canopy	J0125	4.3
2. Main entrance: draught lobby	J0107	4.5
3. Main entrance: foyer	J0137	4.6
4. WC/washroom: unisex, disabled/wheelchair	V1112	4.8
5. Infant feeding room	J0705	4.9
6. Waiting: nappy changing room	J0702	4.10
7. Reception: open counter	J0204	4.11
8. Office: general administration with store space for records trolleys	M0211	4.15
9. Main waiting area including space for wheelchair	J1121	4.19
10. Waiting/play area: up to 8 children	J1410	4.22
11. Clinical: venepuncture room, 1 bay	C1408	4.23
12. Clinical: venepuncture room, 2 bay	C1409	4.23
13. Clinical: venepuncture room, 3 bay	C1410	4.23
14. Consulting/examination room: general	C0216	4.27
15. Multi-bed room: 4 beds	B0607	4.33
16. Bedroom: single bed	B0504	4.33
17. Staff base: 1 staff	T0123	4.44
18. Treatment room: X-ray viewer	X0103	4.46
19. Treatment room: urodynamic	X0219	4.52
20. Clean utility: with medicine trolley	T0602	4.61
21. Dirty utility room: bedpan washer unit, urine testing with suction bottle washer/disinfector	Y0314	4.62
22. Parking bay: resuscitation trolley	G0104	4.64
23. Shower: 1 person	V0801	4.65
24. Bay: trolley/wheelchair park	G0132	4.66
25. Recovery/lounge: pre-discharge, 12 persons	B2512	4.67
26. Play area: up to 4 children, en suite	J1412	4.67
27. Beverage bay	P0707	4.71
28. Interview room	M0712	4.72
29. Office: senior nurse	M0236	4.73
30. Office medical: unit director	M0317	4.74
31. Medical office: 2 staff	M0316	4.75
32. Staff rest: up to 14 staff, with lockers	D0514	4.76
33. Pantry: up to 30 persons	P0616	4.78
34. Seminar room: 10 persons, with workstation	H0528	4.80
35. Store: general	W1112	4.82
36. Cleaner's room: with sink unit	Y1201	4.83
37. Entrance: staff and supplies	J0301	4.84
38. Disposal hold: general	Y0614	4.86
39. Switchgear: room/cupboard	K0101	4.90

Appendix 1

Specialties and investigations/ treatments

Specialties which might use an MI&T unit for day case procedures and, relative to each specialty, a list of investigations and treatments for which patients might be admitted. The asterisks identify the investigations and treatments which comprise the 49% referred to in paragraph 2.31.

Cardiology

Coronary angiography;

pacemaker implantation;

exercise stress test;

transoesophageal echo;

day case cardioversion;

introduction of drug therapy;

blood pressure monitoring.*

Clinical haematology

Blood transfusion; *

autologous blood transfusion;*

intravenous infusion (chemotherapy, in case of accidents of Factor 8 for haemophiliacs, and to give artificial immunity);*

bone marrow aspiration;

trephine bone biopsy;

peripheral stem cell harvest;

urgent assessment of haematological disorders;

teaching self-administration of drugs.*

Dermatology

Dressing ulcers.

Endocrinology

Growth hormone test; *

cortisone day curve;

short Synacthen test; *

water deprivation test;*

glucose tolerance test;

Glucogon stimulation test;*

insulin stress test;*

hormone implant;

aspiration of thyroid gland;

sugar day curve; *

foot care; *

application of Scotch cast boots.*

Castroenterology

Pancreatic function test;

gastric function test;

oesophageal manometry;

bowel motility test;

liver biopsy;

breath test, including C 13, C 14 and hydrogen.

General medicine

Blood transfusion; *

venesection. *

Genito-urinary medicine

Blood transfusion; *

intravenous infusion; *

Pentamidine nebulisation;*

lumbar puncture;*

series of injections (if associated with other procedures);*

skin biopsy. *

Neurology

Intravenous drug therapy (MS patients/steroids and peripheral neuropathies/immunoglobulin);

lumbar puncture;*

myelography (lumbar and cervical).

Palliative medicine

Blood transfusion;*

intravenous drug therapy (hypocalcaemia);*

naso-gastric intubation;*

paracentesis;*

intrathecal block;

epidural block;

lymphodema treatment.

Respiratory medicine

Intravenous infusion (replacement immunoglobulin);*

pleural biopsy;

chest aspiration.;

blood gas analysis;

spirometry test;*

reversibility test; *

full respiratory function test.

Rheumatology

Intravenous infusion;*

myelography;

muscle biopsy;

bone biopsy;

skin biopsy;*

multiple joint injection;

hip injection.*

Urology

Bladder instillation;

catheter care, including self-catheterisation;*

transrectal ultrasound;

pre-investigation (“one-stop”) clinic;

haematuria clinic;*

urodynamics.

Appendix 2

A method for calculating the number of beds/number of consulting/examination rooms required in an MI&T unit

Note: *The text in roman type deals with general matters and the number of beds: the text in italics deals with the number of consulting/examination rooms.*

Introduction

1. Appendix 2 provides a method which may be used to calculate the *number of beds/number of consulting/ examination rooms* required in an MI&T unit. The method is illustrated by worked examples.

Definitions

Workload per annum

2. The **workload per annum** is the number of patients in a year who will need to occupy a *bed/attend a consulting/ examination room* when attending the unit.

Workload capacity of one bed/one consulting/examination room

3. The **workload capacity of one *bed/one consulting/ examination room*** is the number of patients per annum that can be accommodated by one bed/one consulting/ examination room.

Method

Workload per annum

4. The **workload per annum** must be forecast locally. In estimating the future number of patients, account should be taken of a range of factors, including:

- the size and content of past and present workload;
- developments and increase in future workload;
- the demography of the population to be served.

Workload capacity of one bed/one consulting/examination room

5. The **workload capacity of one *bed/one consulting/ examination room*** is the product of:

- the average throughput of patients per working day/ per session;
- the length of the working week in days/in sessions;
- the length of the working year in weeks;
- sthe utilisation rate. For example, the length of the working week may be five days/ten sessions but the accommodation may be utilised for only (say) four *days/eight sessions,* that is 80% of the time. The utilisation rate of a bed may be different from the utilisation rate of a consulting/examination room.

6. The length of the working year would not be expected to be less than 48 weeks.

7. In calculating the workload capacity of one bed, account should be taken of local variations in the factors identified in paragraph 5, for example the inclusion of evening sessions (worked example 2, given in paragraphs 16 to 18, illustrates this point), often preferred by patients.

The number of beds/consulting/examination rooms required

8. The **number of beds/consulting/examination rooms required** in the MI&T unit is the **workload per annum** divided by the **workload capacity of one bed/ *one consulting/examination room.***

9. The number of *beds/consulting/examination* rooms required will seldom be an exact whole number. The factors influencing the answer should be examined to see if the number can be reduced, for example, can the working day/session, week or year be lengthened so as to include a higher number of patients.

10. Rounded-up, the number of beds/consulting/ examination rooms will introduce some spare capacity.

11. *The number of consultinglexamination rooms is also affected by the number of staff holding clinic sessions, for example, if two doctors ho/d a clinic every Monday morning and use one consulting/examination room each then two consultinglexamination rooms have to be provided irrespective of whether they are used concurrently on any other occasion. Every effort should be made to minimise under-utilisation. Paragraphs 25 and 26 illustrate the effect of a range of utilisation rates.*

Worked examples

12. The method described above is illustrated by three worked examples.

Worked example 1 - Number of beds

13. The following assumed figures are used in worked example 1 to illustrate the method:

a. workload per annum (number of patients) = 2000;

b. average number of patients per working day = 2;

c. length of working week in days = 5;

d. length of working year in weeks = 50;

e. utilisation rate = 80%.

14. The workload capacity of one bed is

2 x 5 x 50 X 80% patients

= 400 patients.

15. The number of beds required is

$\frac{2000}{400}$ =5.

Worked example 2 - Number of beds

16. The following assumed figures are used in worked example 2 to illustrate the method:

a. workload per annum (number of patients) = 5,500;

b. average number of patients per working day = 3

c. length of working week in days = 5;

d. length of working year in weeks = 50.

e. number of patients per evening session = 1;

f. number of evening sessions per week = 2;

g. utilisation rate = 80%.

17. The workload capacity of one bed is

(3 x 5 x 50 x 80%) + (1 x 2 x 50) patients

= 600+ 100 patients

= 700 patients.

18. The number of beds required is

$\frac{5,500}{700}$ =7.8

Rounded up=8.

Worked example 3 - Number of consulting/examination rooms

19. The following assumed figures are used in worked example 3 to illustrate the method:

a. workload per annum (number of patients) = 5000;

b. average number of patients per session = 15;

c. length of working week in sessions =10;

d. length of working year in weeks = 50;

e. utilisation rate = 80%.

20. The workload capacity of one consulting/examination room is

15 x 10 x 50 x 80% patients

= 6,000 patients.

21. The number of consulting/examination rooms required is

$\frac{5,000}{6,000}$ =0.83

Rounded up = 1.

Illustrative examples

22. Noted below is a range of workloads per annum which can be accommodated by various sizes of MI&T unit.

Illustrative example 1

23. The workload per annum which can be accommodated by an MI&T unit with six beds (the smallest size included in the 'Schedules of accommodation' in Chapter 7), assuming:

a. all patients attending are admitted to a bed (that is, the consulting/examination room and the treatment room are used only in support of the beds);

b. an average throughput per working day of two patients;

c. a five-day week;

d. a fifty-week year;

e. a range of utilisation rates;

is:

100% utilisation: 3,000 patients;

90% utilisation: 2,700 patients

80% utilisation: 2,400 patients;

70% utilisation: 2,100 patients;

60% utilisation: 1,800 patients;

50% utilisation: 1,500 patients.

24. The workload per annum which can be accommodated in MI&T units with 12 and 18 beds is double and treble respectively the workload per annum which can be accommodated by a unit with six beds.

Illustrative example 2

25. The workload per annum which can be accommodated by an MI&T unit with six beds (the smallest

size included in the 'Schedules of accommodation' in Chapter 7), assuming:

a. an average of 15 patients per session attend an out-patient clinic in the consulting/examination room;

b. an average throughput per bed per working day of two patients;

c. a five-day/ten session week;

d. a fifty-week year;

e. a range of utilisation rates;

is as per illustrative example 1 in terms of use of beds and, in terms of the out-patient clinic:

100% utilisation: 7,500 patients;

90% utilisation: 6,750 patients

80% utilisation: 6,000 patients;

70% utilisation: 5,250 patients;

60% utilisation: 4,500 patients;

50% utilisation: 3,750 patients.

a. an average of 15 patients per session attend an out-patient clinic in each consulting/examination room;

b. a proportion of the patients who have attended the out-patient clinic then go on to be admitted to a bed;

c. an average throughput per bed per working day of two patients;

d. a five-day/ten session week;

e. a fifty-week year;

f. a range of utilisation rates;

is as per illustrative example 1 in terms of use of beds and, in terms of the out-patient clinic:

100% utilisation: 22,500 patients;

90% utilisation: 20,250 patients

80% utilisation: 18,000 patients

70% utilisation: 15,750 patients;

60% utilisation: 13,500 patients;

50% utilisation: 11,250 patients.

Illustrative example 3

26. The workload per annum which can be accommodated by an MI&T unit with six beds and two additional consulting/examination rooms, assuming:

Appendix 3

Information management and technology network diagram (Figure 1) - Glossary

This glossary explains the meaning of those terms used in connection with “Station functions” on Figure 1 (paragraph 2.41 of this HBN) that are not self-explanatory.

1. Orders: electronically placing orders for tests, for example, blood tests and X-rays, and clinical services, for example, physiotherapy and audiology. This function may also include the ability to enquire on the status of orders placed previously, for example, received, being processed and completed.

2. Results: electronically receiving results of orders (paragraph I), for example, results of blood tests and X-rays, direct from clinical service departments. This function may also include the ability:

a. for urgent results to be “automatically” referred for the attention of the responsible clinician;

b. to enquire on a series of results relating to a single patient.

3. Order communications system: the “Orders” and “Results” functions are usually combined in an order communications system.

4. Clinical coding: the process by which clinical information, for example, diagnoses, symptoms and treatment, is entered into a computer in a coded form. It is noted that one element of the NHS Information Management and Technology (IM&T) strategy is the development of a thesaurus of coded clinical terms and groupings.

5. GP contact: a facility to exchange patient information with general practitioners, either by electronic mail or directly by means of a computerised communications network. This facility is also a feature of the NHS IM&T strategy.

6. Waiting lists: access to a clinician’s waiting list management system.

7. Appointments: maintaining, or making enquiries of, the appointments systems for the medical investigation and treatment unit and, for example, the out-patients department.

8. Health records: access to health records held electronically as text, coded data or digitised images, for example, X-rays.

9. Patient assessment: access to a system which supports the structured assessment of a patient’s requirement for clinical care and the systematic collection of data associated with the assessment.

10. Care planning: access to a system which supports the:

a. systematic planning of care, appropriate to a patient's assessed needs;

b. the calculation of the amount of nursing resource, and the correct skill mix, necessary to deliver the planned care.

11. Staff rosters: maintenance of rosters for nursing staff. Computer systems can assist nurse managers in the preparation of rosters.

12. Nursing management system: the “Patient assessment”,"Care planning" and "Staff rosters" functions are usually combined in a single nursing management system.

13. Community contact: a facility to exchange patient information with community, primary care and/or other sectors or agencies, for example, Social Services Department, either by electronic mail or directly by means of a computerised communications network.

14. Decision support: access to a system which can present either clinical or management information in a way that assists the process of decision-making or planning. Systems typically make strong use of graphical displays and allow a level of statistical analysis or “what if” modelling.

15. Contracting: a facility which enables the activities of an MI&T unit to be monitored against its contracts and assists with the management of extra-contractual referrals.

16. Non-clinical orders: electronically placing orders for non-clinical services, for example, for repairs or supplies. This function may also include the ability to enquire on the status of orders placed previously, for example, received, being processed and completed.

Appendix 4

Areas of main waiting area and lounge

Introduction

1. A range of local factors significantly influence the sizes of the main waiting area and lounge in an MI&T unit. In determining the requirements for a particular MI&T unit, therefore, it is essential that project teams carefully examine the local factors.

2. The appendix is not a sizing methodology: it has been included in order to indicate assumptions made as part of the process of assessing areas of the main waiting area and lounge included in the 'Schedules of accommodation' in Chapter 7. Project teams should challenge the assumptions by comparing them with local factors.

Main waiting area

3. The principal factor used in assessing the size of the main waiting area is the number of chairs that need to be accommodated.

4. In sizing the main waiting area **in terms of the number of beds** in the unit, it was assumed that:

a. all patients are accompanied by one escort and that half of the escorts remain for the duration of the session;

b. patients do not wait in the main waiting area.

5. On the basis of the assumptions noted in paragraph 4, the numbers of chairs required in main waiting area in relation to patients admitted to a bed equates with half of the number of beds in the unit.

6. In sizing the main waiting area **in terms of the number of consulting/examination rooms** in the unit, a "worst-case" scenario was assumed for one consulting/ examination room and an "average-case" scenario was assumed for additional consulting/examination rooms, as follows.

"Worst-case"scenario clinic

7. Assumptions made were:

a. all patients are accompanied by one escort;

b. 60 patients attend, for example, a nurse/ venepuncture clinic of four hours 30 minutes duration, half of whom remain to see a doctor;

c. appointments are at 15 minute intervals.

8. On the basis of the above assumptions, 6.66 patients and escorts arrive every 15 minutes and 3.33 patients and escorts remain to see a doctor, and, therefore, ten chairs have been allowed for a "worst-case" scenario clinic.

"Average-case [N] *scenario*

9. Assumptions made were:

a. all patients are accompanied by one escort;

b. 20 patients attend a clinic which lasts for three hours and 20 minutes;

c. appointments are at 1O-minute intervals but three "appointments" arrive during an interval.

10. On the basis of the above assumptions six chairs have been allowed.

11. On the basis of paragraphs 4 to 10, the number of chairs required in the main waiting area, with an allowance for extra chairs as a "cushion", is:

Number of beds	6			12			18		
Number of C/E rooms	1	2	3	1	2	3	1	2	3
Number of chairs	13	19	25	16	22	28	19	25	31
"Cushion"	3	3	3	2	2	2	1	1	1
Number of chairs/ rounded-up	16	22	28	18	24	30	20	26	32

Lounge

12. The principal factor used in assessing the size of the lounge is the number of chairs that need to be accommodated.

13. In sizing the lounge **in terms of the number of beds** in the unit, it was assumed that:

a. half of the patients complete their recovery in a chair in the lounge;

b. half of the patients completing their recovery in the lounge are accompanied by an escort (see paragraph 4.a).

14. On the basis of the assumptions noted in paragraph 13, the numbers of chairs required in the lounge in relation to patients admitted to a bed equates with 75% of the number of beds in the unit.

15. In sizing the lounge **in terms of the number of consulting/examination rooms** in the unit, it has been assumed that:

a. for each consulting/examination, 10% of the patient in the "average-case" scenario remain for treatment and recover in a chair in the lounge;

b. all patient are accompanied by one escort.

16. On the basis of paragraphs 13 to 15, the number of chairs required in the lounge is:

Number of beds	6			12			18		
Number of C/E rooms	1	2	3	1	2	3	1	2	3
Number of chairs	9	13	17	13	17	21	18	22	26

Appendix 5

Combined day surgery, endoscopy and MI&T unit

Introduction

1. This appendix describes in simple terms how Health Building Note (HBN) 52 - 'Accommodation for day care', Volume 1 - 'Day surgery unit', Volume 2 - 'Endoscopy unit' and this Volume 3 - 'Medical investigation and treatment unit' can be used to plan and design a combined day surgery, endoscopy and MI&T unit.

2. Appendix 2, 'Combined day surgery and endoscopy unit' of HBN 52 Volume 2 is relevant in connection with the requirements for accommodation for day surgery and endoscopy in a combined day surgery, endoscopy and MI&T unit. This appendix considers how Appendix 2 in HBN 52 Volume 2 needs to be modified to take account of HBN 52 Volume 3 when planning and designing a combined day surgery, endoscopy, and MI&T unit.

HBN 52 Volume 3 - 'Medical investigation and treatment unit'

3. Main differences in the spaces provided in the MI&T unit described in HBN 52 Volume 3 compared with spaces provided in the combined day surgery and endoscopy unit described in Appendix 2 of HBN 52 Volume 2 are noted below:

a. additional spaces are included, namely:

   (i) multi-bed and single-bed rooms and an associated staff base;

   (ii) a treatment room;

   (iii) a lounge;

   (iv) a clean utility room;

   (v) a urodynamics treatment room (OAS);

   (vi) a venepuncture room (OAS).

b. an interview room is included as basic accommodation (whereas in Volumes 1 and 2 the interview room is optional);

c. separate baby feeding and nappy changing rooms (both OAS) are included (as against a combined baby feeding and nappy changing room (OAS) in Volumes 1 and 2);

d. unisex wheelchair accessible WCs only are included for all users;

e. staff change/locker rooms are included as ECA (whereas in Volumes 1 and 2 staff change/locker rooms are included as basic accommodation);

f. spaces associated with surgical and endoscopic procedures, but which are not required in connection with medical investigation and treatment procedures, are excluded.

Combination of spaces from HBN 52 Volumes 1, 2 and 3

Schedule of accommodation

4. The schedule of spaces for a combined day surgery, endoscopy and MI&T unit may include the spaces described in Appendix 2 of HBN 52 Volume 2, plus the additional spaces (as listed in paragraph 3.a above) and variations to spaces (as noted in paragraph 3.b, c, d and e above) described in Volume 3.

5. Paragraphs 1.2, 2.21 to 2.23 and 3.53 of this volume refer to the need for spaces attended by patients for medical investigation and treatment to be separate from spaces attended by patients for day surgery and endoscopy. Project teams will need to consider this matter carefully: decisions may be influenced by the workload and detailed design of the unit. However, provision of separate spaces would be expected in respect of those noted in paragraph 3.a.(i), (ii), (iii), (v) and (vi) and the main waiting area.

6. Project teams will need to consider carefully the numbers and sizes of spaces in a combined day surgery, endoscopy and MI&T unit. The schedule of accommodation for a combined unit assembled from HBN 52 Volumes 1, 2 and 3 will be determined by:

a. the functional content of the day surgery, endoscopy and medical investigation and treatment components;

b. the functions of the spaces (see paragraphs 7 and 8);

c. the operational policy of the combined unit.

7. Spaces which are dedicated for a particular function, for example, the operating theatre, the anaesthetic room, the scrub-up and gowning area, the preparation room, the utility room, etc., for day surgery, the endoscopy room for endoscopy, and the bed rooms, treatment room, etc., for medical investigation and treatment, should be provided in accordance with the schedules of accommodation in HBN 52.

8. The number and sizes of spaces which are shared by the day surgery function, the endoscopy function and the medical investigation and treatment function will need to be determined individually: a wide range of permutations are possible. A combined unit may require:

a. the same number and sizes of spaces as allowed in Volume 1;
b. more spaces of the same, or a smaller, size;
c. the same number of, but larger, spaces.

Relationships of spaces

9 . Project teams should seek to ensure that the requirements for intradepartmental and interdepartmental relationships, as expressed in HBN 52 Volumes 1, 2 and 3 are maintained in plans for a combined unit.

10. It is also important to recognise the need for spaces attended by patients for medical investigation and treatment to be separate from spaces attended by patients for day surgery and endoscopy.

Bibliography

Acts and Regulations

Chronically Sick and Disabled Persons Act 1970. HMSO 1970.

Chronically Sick and Disabled Persons (Amendment) Act 1976. HMSO 1976.

Chronically Sick and Disabled Persons (Northern Ireland) Act. HMSO 1978.

The Chronically Sick and Disabled Persons (Scotland) Act 1972. HMSO 1972.

Disabled Persons Act 1981. HMSO 1981.

Disabled Persons (Northern Ireland) Act. HMSO 1989.

Disabled Persons (Services, Consultation and Representation) Act 1986. HMSO 1986.

Health and Safety at Work etc Act 1974. HMSO 1974.

SI 2768:1991 The Building Regulations. HMSO 1991.

SI 1180:1992 The Building Regulations (Amendment) Regulations. HMSO 1992.

Sl 2179:1990 (S 187) The Building Standards (Scotland) Regulations. HMSO 1990.

Sl 1039:1978 (NI 9) Health and Safety at Work (Northern Ireland) Order. HMSO 1978.

Sl 2049:1987 (NI 12) Consumer Protection (Northern Ireland) Order. HMSO 1987.

The Building Regulations 1991: approved document M: access and facilities for disabled people. Department of the Environment, HMSO 1992.

The Building Regulations (Northern Ireland) 1990 - Part R: Facilities for disabled people. Department of the Environment for Northern Ireland, HMSO 1994.

The Building Regulations (Northern Ireland) 1990 - Technical booklet R: Access and facilities for disabled people. Department of the Environment for Northern Ireland, HMSO 1994.

The Building Standards (Scotland) Regulations 1990: Technical standards part T: Facilities for disabled people. Scottish Office Building Directorate, HMSO 1990.

NHS Estates publications

Health Building Notes (HBNs)

HBN I- Buildings for the health service. DHSS, HMSO 1988.

HBN 2 -The whole hospital, briefing and operational policies. NHS Estates, HMSO 1992.

HBN 4 -Adult acute wards. NHS Estates, HMSO 1990.

HBN 18 - Off ice accommodation in health buildings. NHS Estates, HMSO 1991.

HBN 21- Maternity department. NHS Estates, HMSO 1989.

HBN 23 - Hospital accommodation for children and young people. NHS Estates, HMSO 1994

HBN 34 - Estate maintenance and works operations. NHS Estates, HMSO 1992.

HBN 36 - Local healthcare facilities. NHS Estates, HMSO 1995.

HBN 38 - Accommodation for adult acute day patients. 1982 (replaced by HBN 52)

HBN 40 - Common activity spaces (4 volumes). NHS **Estates, HMSO 1995.**

HBN 45 - External works for health buildings. NHS Estates, HMSO 1992.

HBN 52 -Accommodation for day care:

Vol 1: Day surgery unit. NHS Estates, HMSO 1993.

Vol 2: Endoscopy unit. NHS Estates, HMSO 1994.

Health Technical Memoranda (HTMs)

HTM 55 - Building components: Windows. NHS Estates, HMSO 1989.

HTM 57 - Building components: Internal glazing. NHS Estates, HMSO 1989.

HTM 58 - Building components: Internal doorsets. NHS Estates, HMSO 1989.

HTM 59 - Building components: Ironmongery. NHS Estates, HMSO 1989.

HTM 60 - Building components: Ceilings. NHS Estates, HMSO 1989.

HTM 61 - Building components: Flooring. NHS Estates, HMSO 1989.

HTM 69 - Building components: Protection. NHS Estates, HMSO 1993.

HTM 2009 - Pneumatic air tube transport systems. NHS Estates, HMSO 1995.

Firecode Publications

Firecode: policy and principles. NHS Estates, HMSO 1994.

Northern Ireland Firecode: policy and principles. Estates Services Directorate, Department of Health and Social Services for Northern Ireland, HMSO 1994.

Firecode: Nucleus fire precautions recommendations. Department of Health, HMSO 1989.

Firecode: directory of fire documents. Department of Health, HMSO 1987.

HTM 81 - Fire precautions in new hospitals. DHSS, HMSO 1987.

HTM 81 Supplement 1 - Fire precautions in new hospitals. NHS Estates, HMSO 1993.

HTM 82 - Firecode: alarm and detection systems. NHS Estates, HMSO 1989.

HTM 83 - Fire safety in healthcare premises: general fire precautions. NHS Estates, HMSO 1994.

HTM 85 - Fire precautions in existing hospitals. NHS Estates, HMSO 1994.

HTM 86 - Fire risk assessment in hospitals. NHS Estates, HMSO 1994.

HTM 87 - Firecode: textiles and furniture. NHS Estates, HMSO 1993.

HTM 88 - Fire safety in health care premises. DHSS, HMSO 1986.

Fire Practice Note 1 - Laundries. Department of Health, HMSO 1987.

Fire Practice Note 2 - Storage of flammable liquids. Department of Health, HMSO 1987.

Fire Practice Note 3 - Escape bed lifts. Department of Health, HMSO 1987.

Fire Practice Note 4 - Hospital main kitchens. NHS Estates, HMSO 1994.

Fire Practice Note 5 - Commercial enterprises on hospital premises. NHS Estates, HMSO 1992.

Fire Practice Note 6 - Arson prevention and control in NHS healthcare premises. NHS Estates, HMSO 1994.

Health Facilities Notes (HFNs)

HFN 08 - Acute care at home: fact or fiction. NHS Estates, HMSO 1995. (in preparation)

HFN 05 - Design against crime: a strategic approach to hospital planning. NHS Estates, HMSO 1994.

Capital Investment Manual:

Overview. NHS Executive, HMSO 1994.

Project organisation. NHS Executive, HMSO 1994.

Private finance guide. NHS Executive, HMSO 1994.

Business case guide. NHS Executive, HMSO 1994.

Management of construction projects. NHS Executive, HMSO 1994.

Commissioning of a health care facility. NHS Executive, HMSO 1994.

IM&T Guidance. NHS Executive, HMSO 1994.

Post project evaluation. NHS Executive, HMSO 1994.

Scottish Office - health building procurement in Scotland: procedures prior to approval in principle (SHHD/DGM(87)13). Scottish Home and Health Department, 1987.

Scottish Office - health building procurement in Scotland: principles of cost control (SHHD/DS(85)58). Scottish Home and Health Department 1985.

Health building procurement in Scotland: procurement procedures for health buildings (SHHD/DGM(91)38). Scottish Home and Health Department 1985.

Health building procurement in Scotland: procedures subsequent to approval in principle. Scottish Home and Health Department, 1992.

Works Guidance Index. NHS Estates, annual publication.

Departmental cost allowance guides (DCAGs). Published in Quarterly Briefing, available from NHS Estates.

Equipment cost allowance guides (ECAGs). Listed in Concise 4 Database, available from NHS Estates.

Department of Health publications and circulars

Day surgery: making it happen. NHS Management Executive, Value for Money Unit, HMSO 1991.

Guidelines for the safe and secure handling of medicines: a report for the Secretary of State for Social Services. Joint Sub-Committee of the Standing Medical, Nursing and Midwifery, and Pharmaceutical Advisory Committees, Department of Health 1988.

Health of the Nation: a strategy for health in England (Cm 1986). Department of Health, HMSO 1992.

NHS IT standards handbook volume 2: NHS IT standards. Information Management Group, Department of Health 1994.

Patient hotels: a quality alternative to ward care. NHS Management Executive, Department of Health, HMSO 1992.

Towards NHS-wide networking: *in An information management and technology strategy for the NHS in England: getting better with information.* Information Management Group, Department of Health 1992.

Hospital building: teaching hospital space requirements (DS 65/74). DHSS 1974.

Hospital building: teaching hospital space requirements (DS 86/74). DHSS 1974.

LPG aerosol containers: risks arising from storage, use and disposal (SAB(88)79). Department of Health 1988.

Health building and estate management: building legislation compliance procedures (HC(88)60/ HC(FP)(88)29). Department of Health 1988.

Estates requirements (Estates Services Directorate letter ref 15781/92). ME Estates Services Directorate, Department of Health and Social Services for Northern Ireland, 1992.

The NHS and Community Care Act 1990: removal of Crown immunities (HN(90)27/LASSL(90)15). Department of Health 1990.

The NHS and Community Care Act 1990: removal of Crown immunities (WHC(91)4). Welsh Office, 1991.

NHS and Community Care Act 1990: removal of Crown immunity (Scottish NHS Circular No 1991(GEN)1). Scottish Office, Home and Health Department, 1991.

Health services management: security (HSG(92)22). NHS Management Executive, Department of Health 1992.
Towards smoke-free NHS premises (HSG(92)41). NHS Management Executive, Department of Health 1992.

Towards smoke-free premises in the Health and Social Services (HSS(OP1)2/93). Department of Health and Social Services for Northern Ireland, 1993.

Towards smoke-free NHS premises (MEL(92)24). NHS Management Executive in Scotland 1992.

Ambulance and other patient transport services in Wales: operation, use and performance standards (WHC(92)86). Welsh Office, 1992.

Consultants contracts and job plans (WHC(89)20). Welsh Office, 1990.

Upgrading and adaptation of existing buildings: revision of DS 183/74 (WKO(81)4). DHSS 1981.

Upgrading and adaptation of existing buildings (HSS(WSI)20/74). Department of Health and Social Services for Northern Ireland, 1981.

Miscellaneous publications

BS5810:1979 Access for the disabled to buildings. British Standards Institute 1979.

BS 7320: 1990 Specifications for sharps containers. *(AMD 8093, 5/94).* British Standards Institution 1990.

NHS Security Manual (2nd edition). National Association of Health Authorities and Trusts (NAHAT), 1992.

Lying in wait: the use of medical beds in acute hospitals. Audit Commission, HMSO 1992.

A short cut to better services: day surgery in England and Wales. Audit Commission, HMSO 1990.

Use of National Health Service operating theatres in England: a progress report. National Audit Office, HMSO 1991.

Violence to staff in the health services. Health Services Advisory Committee, Health and Safety Commission, HMSO 1987.

Safe disposal of clinical waste. Health Services Advisory Committee, Health and Safety Commission, HMSO 1992.

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38 -
39 Ophthalmic clinic, 1982. HMSO
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Vol 2 -Treatment areas, 1995. HMSO
Vol 3 - Staff areas, 1995. HMSO
Vol 4 - Circulation areas, 1995. HMSO
41 Accommodation for staff changing and storage of uniforms, 1984. HMSO*
42 Accommodation for education and training, 1989. HMSO*
43 -
44 Accommodation for ambulance services. 1994. HMSO
45 External works for health buildings, 1992. HMSO
46 General medical practice premises, 1991. HMSO
47 Health records department, 1991. HMSO
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49 -
50 -
51 Main entrance, 1991. HMSO
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