

Scottish Health Planning Note 52

Accommodation for day care
Part 1 – Day surgery unit





Contents

About this series	page 7
1. Scope of SHPN 52 Part 1	page 8
1.1 Introduction	
1.3 Range of provision	
1.3 Inclusions	
1.4 Exclusions	
1.5 Building cost and revenue expenditure	
1.5 General	
1.7 Functional unit	
2. Service objectives	page 10
2.1 Introduction	
2.2 Classification of hospital patients	
2.3 The benefits of day surgery	
2.4 The development of day surgery	
2.6 The self-contained, dedicated day surgery unit	
2.9 Patients with special needs	
2.10 Children and day surgery	
2.13 Option 1 - a dedicated children's unit	
2.14 Option 2 - a dedicated children's session	
2.15 Option 3 - concurrent children's and adults' sessions	
2.16 Option 4 - limited use of unit by children	
2.18 Sizing a day surgery unit	
2.19 General design guidance	
2.23 Functional relationships	
2.24 Intradepartmental relationships	
2.37 Location	
2.39 Planning considerations	
2.39 Patients and escorts	
2.41 Car parking	
2.43 Bicycle storage	
2.44 Provision of WCs	
2.47 Hospital clinical and operational policies	
2.48 Catering	
2.50 Supply, storage and disposal	
2.53 Sterile services	
2.55 Clinical services	
2.56 Staff changing	
2.58 Information handling	



3.	Specific functional and design requirements	page 23
3.1	Introduction	
3.2	Relationships of spaces	
3.3	Description of accommodation	
3.3	Main entrance canopy	
3.5	Main entrance draught lobby	
3.6	Main entrance foyer	
3.9	Reception counter	
3.12	General office	
3.16	Main waiting area	
3.18	Play area (main waiting)	
3.19	Pre-admission assessment clinic	
3.21	Patient changing rooms	
3.24	Consulting, examination and admissions rooms	
3.28	Sub-wait area	
3.29	Admissions suite staff base	
3.31	WCs (admissions suite)	
	3.31 Patient	
	3.32 Disabled people	
3.33	Patient's shower	
3.34	Secondary entrance	
3.36	Children's reception	
3.38	Operating theatre suites	
3.44	Anaesthesia room/theatre ante-room	
3.53	Operating theatre	
3.65	Operating microscopes	
3.69	Scrub-up and gowning	
3.71	Preparation room	
3.74	Utility room	
3.77	Cleansing/disinfecting room	
3.81	Exit bay	
3.83	Equipment cupboards	
3.84	Mobile X-ray equipment bay	
3.85	Darkroom	
3.86	Post anaesthesia recovery room	
3.96	Post-anaesthesia staff base	
3.98	Dirty utility	
3.100	Pre-discharge recovery areas	
3.105	Pre-discharge recovery staff base	
3.108	Beverage bay	
3.109	WCs (pre-discharge areas)	
	3.109 Patient	
	3.110 Disabled people	



3.111	Staff change/locker room	
3.115	Boot lobby	
3.116	Staff sanitary facilities	
3.117	Staff rest room	
3.119	Staff pantry	
3.120	Seminar room	
3.122	Unit director's office	
3.123	Nurse manager's office	
3.124	Medical staff office	
3.125	Interview room	
3.126	Central store	
3.129	Main equipment store	
3.131	Equipment service room	
3.132	Medical gas cylinders store	
3.133	Unit cleaners' room	
3.134	Escort and visitor WC	
3.135	Baby feeding and nappy changing room	
3.136	Public telephones	
3.137	Crutches and splint store	
3.138	Wheelchair park bay	
3.139	Soiled linen hold	
3.140	Soiled returns hold	
3.141	Disposal hold	
3.145	Switchcupboard and battery enclosure	
4.	General functional and design requirements	page 48
4.1	Introduction	
4.2	Internal environmental conditions	
4.2	Floors - operating theatres	
4.6	Anti-static flooring	
4.7	Ventilation – operating theatre suites	
4.9	Anaesthetic gas scavenging	
4.10	Controls for heating and ventilation	
5.	Engineering services	page 50
5.1	Introduction	
5.2	Maximum demands	
5.3	Mechanical services	page 51
5.3	Heating	
5.4	Ventilation	
5.4	Ancillary accommodation	
5.8	Substances hazardous to health	
5.11	Operating theatre	
5.14	Operating theatre - plant	



5.21	Plant control and indication	
5.24	Hot and cold water services	
5.25	Deionized/sterile water	
5.26	Piped medical gases and vacuum	
5.31	Anaesthetic gas scavenging	
5.33	Electrical services	page 54
5.33	Operating theatre suites	
5.38	Illuminated signs	
5.39	Socket-outlets and power connections	
5.41	Socket-outlets for minor scheduled servicing of medical equipment	
5.44	Secondary entrance	
5.46	Staff location system	
5.47	Patient/staff and staff/staff call systems	
5.49	Wireways	
	5.49 Telephones	
	5.53 Data links	
5.54	Electric clocks	
5.55	Music and television	
6.	Schedules of accommodation	page 58
7.	Appendices	page 63
	Appendix 1	A method for calculating the number of operating theatres required in a day surgery unit
	Appendix 2	Information management and technology network diagram (Figure 2) - Glossary
	Appendix 3	Numbers and areas of key spaces
	Annexe to Appendix 3	
	References	page 79
	Publications in Scottish Health Planning Note series	page 82
	Publications in Scottish Hospital Planning Note series	page 83



Disclaimer

The contents of this document are provided by way of guidance only. Any party making any use thereof or placing any reliance thereon shall do so only upon exercise of that party's own judgement as to the adequacy of the contents in the particular circumstances of its use and application. No warranty is given as to the accuracy of the contents and the Property and Environment Forum Executive, which produced this document on behalf of NHSScotland Property and Environment Forum, will have no responsibility for any errors in or omissions therefrom.

The production of this document was jointly funded by the Scottish Executive Health Department and the NHSScotland Property and Environment Forum.



About this series

The Scottish Health Planning Note series is intended to give advice on the briefing and design of healthcare premises in Scotland.

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

Acknowledgements

The Property and Environment Forum Executive gratefully acknowledges the assistance received from the following individuals in the preparation of this SHPN:

Mr J. Cahill	British Association of Day Surgery
Dr D. I .M. Farquharson	Royal Infirmary of Edinburgh
Dr J. C. Howie	Victoria Infirmary, Glasgow
Prof. J. D. Hutchison	University of Aberdeen Medical School
Dr J. L. Jay	Gartnavel General Hospital, Glasgow
Sister M. May	Victoria Infirmary, Glasgow
Dr I. McMenemin	Western Infirmary, Glasgow
Sister R. McMillan	Royal Infirmary of Edinburgh
Dr D. Russell	Southern General Hospital, Glasgow

SHPN 52 Part 1 has been adapted from the core text provided by NHS Estates, England. The Property and Environment Forum Executive thanks Mr Norman Raitt of Norman Raitt Architects for editing and adapting the text for NHSScotland.



1. Scope of SHPN 52 Part 1

Introduction

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

Part 1 - Day surgery unit;

Part 2 - Endoscopy unit;

Part 3 - Medical investigation and treatment unit;

- 1.2 Part 1 provides guidance for the planning and design of accommodation for a day surgery unit (DSU) in or adjacent to an Acute Teaching Hospital (ATH) or a District General Hospital (DGH). The option of providing a stand-alone DSU is recognised. Project teams planning a stand-alone unit should be aware of the need for facilities and support services additional to those described in Part 1, for example, accommodation which in an ATH or a DGH would be provided on a Whole Hospital basis.

Range of provision

Inclusions

- 1.3 A self-contained, dedicated unit suitable for carrying out surgical procedures and treatments on adult and child patients whose discharge is planned for the same day as their admission is the subject of Part 1. It includes operating theatre suites to main operating department standards and is suitable for most types of day surgery practised in an ATH or a DGH. If a speciality requires the general design to be modified or the addition of specialised facilities, project teams will need to decide whether to accommodate the speciality in the DSU, and how that should be done, or to make alternative arrangements.

Exclusions

- 1.4 Part 1 excludes guidance for accommodation for:
- day care services for patients who require to stay in hospital overnight;
 - endoscopic procedures;
 - medical investigations and treatment;
 - antenatal day care assessment.



Building cost and revenue expenditure

General

- 1.5 General guidance on matters pertaining to building cost and revenue expenditure is given in Chapter 5 of SHPN 03 – ‘General design guidance’.
- 1.6 When calculating the building cost of the Department described in this Note, allowance should be made for all accommodation, appropriate to the particular project, described in [Chapter 3](#) and listed in the Schedules of Accommodation, the engineering services described in [Chapter 5](#) and all Group 1 equipment. Primary engineering services should be costed from the boundary of the site and, where appropriate, an allowance should be made for a share of the central refrigeration plant and distribution system.

Functional unit

- 1.7 The functional unit used to express the functional content of a DSU is ‘the operating theatre’.



2. Service objectives

Introduction

- 2.1 This Chapter considers the case for day surgery and service objectives related to the provision of a day surgery unit (DSU), including the need for the unit to be self-contained and dedicated, children and day surgery, 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:
- in-patients - who stay in hospital overnight;
 - out-patients - who attend for consultations, examinations, investigations and minor procedures and leave as soon as they are finished;
 - day-patients - who do not require an overnight stay but need a relatively short period of time after a procedure for recovery. Many day-patients stay in hospital for the whole of the working day. Some, however, may stay for no more than a morning or an afternoon.

The benefits of day surgery

- 2.3 The benefits of elective surgery carried out on a day basis are widely recognised. Day surgery provides a form of treatment, for:
- patients that:
 - (i) the majority prefer;
 - (ii) is planned, and more certain than admission as an in-patient;
 - (iii) is more convenient. Patients can return home quickly: there is no need to stay in hospital overnight and the disruption of working and domestic life is minimised;
 - (iv) reduces the risk of hospital-acquired infection;
 - (v) is less stressful, particularly for children.
 - clinicians that:
 - (i) enables them to schedule their work more efficiently;
 - hospital managers that:
 - (i) achieves a more efficient use of health care resources. Results may include an increase in patient throughput, a reduction in waiting lists, a lower cost per case and less pressure on in-patient beds;



- (ii) assists the recruitment and retention of nursing staff;
- (iii) enables more effective use to be made of the hospital estate and its assets.

The development of day surgery

2.4 The number of patients treated as day cases over the last 15 years has increased dramatically and it is expected that massive growth of day surgery services will be one of the most significant developments of NHSScotland over the next few years.

2.5 Influential factors in the development of day surgery include:

- the need to promote quality services to patients;
- the need to reduce waiting lists for in-patient surgery;
- the need to provide cost effective care and treatment, particularly in response to NHSS reforms and as encouraged by recent reports (for example, The Audit Commission report 'A Short Cut to Better Services', October 1990);
- improved techniques, facilitated by technological advances, including the introduction of laparoscopic surgery and the use of lasers.

The self-contained, dedicated day surgery unit

2.6 It is possible to carry out day surgery in a variety of facilities. The two essential requisites are an operating theatre in which to perform the procedure and a space where patients can fully recover prior to discharge.

2.7 This document describes a DSU which is:

- **self-contained.**

Patients are admitted to, treated in, and discharged from the unit. They will normally not need to attend any other department in the hospital on the day of their treatment;

- **dedicated for day surgery only.**

It is not intended that the unit should be used for:

- i) surgical procedures on inpatients;
- ii) "parking" patients treated elsewhere in the hospital;
- iii) overnight stay of accident and emergency patients or "overflow" in-patients.

Patient needs, workload and speed of throughput in a DSU are very different from those in a main operating department. A DSU should not be planned as



part of the main operating department nor attempt to share facilities in that department.

2.8 Some advantages of a self-contained, dedicated DSU are:

- best possible quality care can be provided. Patients receive closer personalised attention in a special environment;
- there is a single key source of administrative control. The unit is administratively ring-fenced, with its own staff able to make use of its own facilities;
- operations are not suddenly displaced because of the need to give priority to emergency cases;
- the unit can engender its own special ethos.

Patients with special needs

2.9 The DSU should be capable of accommodating a range of surgical specialities and surgical procedures. Developments in the field of day surgery will continue to extend the types of operations which can be carried out on a day basis. Special arrangements will be necessary for particular groups of patients, for example, children and people with learning disabilities.

Children and day surgery

2.10 A main principle of the Department of Health report 'Welfare of Children and Young People in Hospital' is that "Children are admitted to hospital only if the care they require cannot be as well provided at home, in a day clinic or on a day basis in hospital". The report states that "Day care can make a valuable contribution to family centred health care by reducing the occasions when it is necessary for a child to be admitted overnight in hospital" and advises that "the child is neither admitted nor treated alongside adult patients . . . the environment is suitably laid out and furnished with easy access for people with disabilities and an area where children can play before and after treatment".

2.11 DSUs should be designed so that carers can accompany child patients for as much as possible of their attendance.

2.12 Segregation of child patients and adult patients can be achieved in a number of ways: four options for consideration by project teams are described below. Options 1 and 2 ensure segregation but whether or not they are appropriate for implementation will need to be determined locally, taking account of such factors as the numbers and case mix of children to be admitted.



Option 1 - a dedicated children's unit

- 2.13 A dedicated children's unit is the preferred option of the Caring for Children in the Health Service (CCHS) report 'Just for the day'. For many hospitals, however, a dedicated children's unit may not be viable.

Option 2 - a dedicated children's session

- 2.14 A children's session may be arranged in an otherwise adult DSU and the unit dedicated for use by children only. For this option to be viable, a sufficient number of children will need to be treated during sessions arranged on a periodic or occasional basis, as appropriate. Areas attended by children and their carers should be temporarily converted to provide an appropriate child friendly environment. Specialist paediatric nurses may be required. This arrangement makes it difficult for children to visit the DSU for assessment prior to the day of surgery.

Option 3 - concurrent children's and adults' sessions

- 2.15 Concurrent children's and adult's sessions need to be organised with sensitivity. Visual and auditory separation of child patients and adult patients must be achieved within main waiting, post-anaesthesia recovery and pre-discharge recovery areas.

Option 4 - limited use of unit by children

- 2.16 This option involves use of the unit by children for surgery and post-anaesthesia recovery only. Children are admitted to the day care ward of the children's department and returned there, following surgery, for pre-discharge recovery and discharge. The DSU would need facilities to accommodate children on arrival and prior to return, and to be connected to the hospital street.
- 2.17 Medical opinion of Option 4 is polarised. It is pointed out that day surgery for adults should be provided in an environment which is domestic, friendly and as non-clinical as possible and that it is at least equally as important to achieve this objective for children. On this basis, it is considered unacceptable to move children between the children's department and the DSU. The alternative point of view demands total visual and auditory separation of child patients and adult patients in the DSU and foresees difficulties in achieving this in Option 3; therefore Option 4 (although less than perfect itself) is preferred to Option 3.

Sizing a day surgery unit

- 2.18 The number of operating theatres required in a DSU may be calculated as described in Chapter 7 [Appendix 1](#).



General design guidance

- 2.19 A DSU should be planned and designed to provide patients and their escorts with high quality facilities which will be easy for staff to manage and operate. In addition to complying with the guidance described in this document, DSUs should also meet the general guidance described in SHPN 03 – ‘General design guidance’.
- 2.20 The design should help to assure patients that they are receiving a first class service. To this end, particular attention should be paid to the visual aspects of the unit as well as functional and environmental needs.
- 2.21 **Figure 1** illustrates key planning principles which include simple, direct flowlines, and compact routes and spaces, that:
- progress patients and supplies forward without unnecessary looping back;
 - ensure pre-operative and post-operative patients do not meet at any point in the unit (except perhaps at the point of entry/exit);
 - eliminate cross-over circulation points;
 - reduce double-handling of patients and supplies;
 - reduce staff travel.
- 2.22 DSUs planned and designed in accordance with these principles will run effectively and efficiently. Managers of DSUs must ensure that patients are never allowed to feel that they are “on a conveyor belt” or are being treated as part of a production line process.

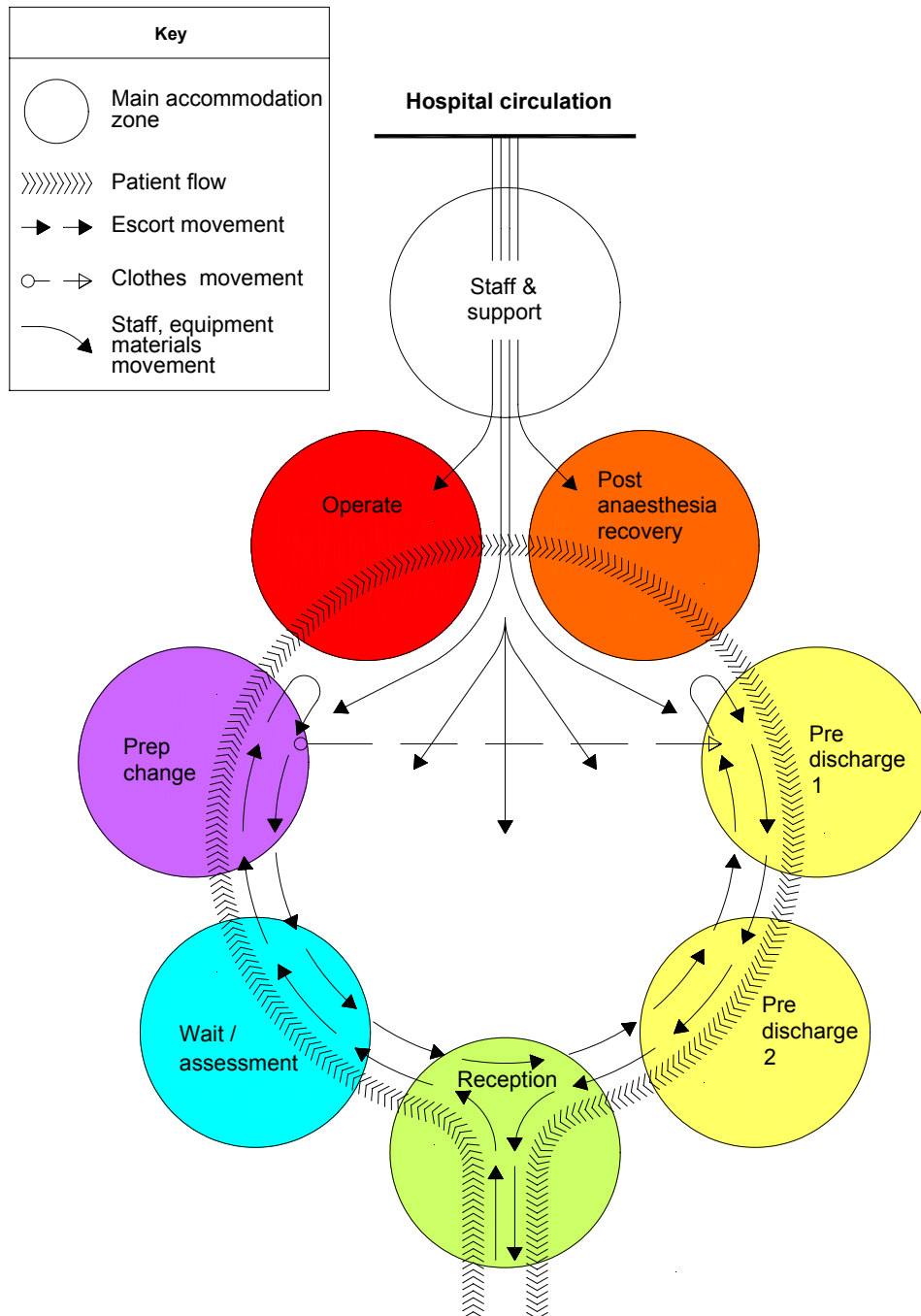


Figure 1: The patient cycle – planning principle



Functional relationships

2.23 This document describes a DSU in or adjacent to an Acute Teaching Hospital or a District General Hospital. Locating a DSU in or adjacent to a an ATH or a DGH:

- provides direct access to the full range of support services;
- facilitates admission of patients if necessary, particularly important for children.

Intradepartmental relationships

2.24 Patient-related activities in a DSU fall into six main groups which occur in the following sequence, except for pre-admission assessment which is carried out prior to the patient's visit to the DSU for surgery:

- reception and waiting;
- pre-admission assessment;
- pre-operative preparation;
- operation;
- post-anesthesia recovery;
- pre-discharge recovery and discharge.

This document identifies the spaces which need to be provided for these groups of activities.

2.25 The patient management system will significantly influence the design and overall area of the unit, including the number of:

- chairs in the main waiting area;
- patient changing cubicles and lockers;
- trolley positions in the admissions suite;
- trolley positions in the post-anaesthesia recovery room;
- chairs in the pre-discharge recovery areas.

Project teams will need information in connection with the management of patients, including the planned throughput, the appointments system and the policy for escorts.

2.26 The number of chairs in the main waiting area in particular is affected by the appointments system. It is recommended that all patients to be treated in one session arrive together at the beginning of the session, although in practice some staggering of arrivals will occur by the late arrival of some patients and by the time taken for reception. Phased admission is not recommended as it slows



the theatre list resulting in fewer cases per session. Waiting times should be kept to the minimum and clearly explained to patients when they have their pre-admission assessment.

- 2.27 The assumptions used to determine the size and/or number of spaces referred to in [paragraph 2.25](#) are identified in [Appendix 3](#). The figure included with the [Annexe to Appendix 3](#) illustrates by means of a bar chart the movement of patients and escorts through a DSU during a half-day session. With the accompanying text, project teams will find the figure helpful as a basis for carrying out their own assessment of the affect of local factors on the number and/or areas of spaces required.
- 2.28 The design of the unit should facilitate uninterrupted patient movement both between and within the groups of spaces.
- 2.29 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. Provision of a separate entrance for staff and materials handling purposes will facilitate this.
- 2.30 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. Separate male and female areas are vital, for example within the preparation area of [Figure 3](#). Appropriate spaces should provide visual and auditory privacy.
- 2.31 Consideration should be given to accommodating other related day care services, such as endoscopy and medical investigations and treatment, in the DSU. (See SHPN 52 - 'Accommodation for day care', Parts 2 and 3.)
- 2.32 Children should not be moved around a hospital unnecessarily. If, for day surgery, children attend both the children's department and the DSU (see Option 4, [paragraph 2.16](#)), the two departments should be sited close to each other in order to minimise the travelling distance.
- 2.33 Patients may make their own appointments for day surgery at the DSU immediately following an out-patient attendance and a successful pre-admission assessment. It will help patients if the DSU is located close to the out-patients department.
- 2.34 It is assumed that day surgery patients will be assessed in the DSU. However, assessments may also be carried out in the out-patients department. Assessment in the DSU allows patients to visit the unit, meet DSU staff and ask pertinent questions of the specialist day surgery staff.
- 2.35 A DSU will need to draw upon other hospital departments for support services. There are no critical connections which demand that the DSU is located immediately adjacent to any of them, but short logistical links and ease of access will aid efficiency. If pre-admission assessments are carried out in the DSU, depending on assessment nurses' skills, it may be prudent to locate the DSU within easy walking access to the cardiology department.



- 2.36 Provision of a secondary entrance from the hospital street will facilitate ease of access to and from other parts of the hospital for patients, staff and materials.

Location

- 2.37 The main locational requirement of a DSU within an ATH or a DGH 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.
- 2.38 The DSU must be sited at ground level and be on a single floor. It should have its own external main entrance off the hospital road system for use by patients and escorts. The DSU should have a clear, unique identity.

Planning considerations

Patients and escorts

- 2.39 The majority of patients and escorts will make their own arrangements for transport to and from the DSU, many travelling by private car. Patients and escorts should be able to locate the DSU easily from the main entrance to the hospital site.
- 2.40 Escorts may remain with adult patients for all activities except “operation” and “post-anaesthesia recovery” (see [paragraph 2.24](#)). During the period of “operation” and “post-anaesthesia recovery”, and also during other periods of a patient’s attendance, escorts of adult patients may wish to leave the unit. Escorts should be advised when to return or the use of an escort location system (similar to a “bleep”/staff location system for members of staff) will facilitate the recall of escorts as and when appropriate. Mobile telephones should not be used and should be switched off within the DSU.

Car parking

- 2.41 Car parking facilities should be provided for patients and escorts attending the DSU. It is essential that patients can be set down prior to day surgery and, more importantly, collected following day surgery, at a point close to the main entrance to the DSU. This objective can be achieved if the car parking facilities are located:
- close to the DSU, and an adequate number of spaces reserved for use by patients/escorts; or
 - remote from the DSU, but adequate space is provided near the main entrance where cars can be parked temporarily while escorts attend to patients.



A member of staff may have to stay with the patient until the escort returns with the car.

- 2.42 Car parking should also be provided for staff.

Bicycle storage

- 2.43 Secure bicycle storage for staff may be required and should be provided in the ratio of 1 cycle space for every 8 car parking spaces. See 'Cycling by Design', Scottish Executive.

Provision of WCs

- 2.44 WCs are required in a DSU:

- for men and women who are disabled as well as those who are ambulant;
- for patients, escorts, staff and visitors, any of whom could be disabled;
- for patients and escorts, close to the main waiting area, the patient changing rooms and the pre-discharge recovery areas.

In responding to these diverse needs, care should be taken to avoid the provision of an excessive number of WCs.

- 2.45 Single cubicle WCs, appropriate for use by men or women, are implied. Those in patient areas should be of a sufficient area to allow staff to assist when necessary, including manoeuvring a patient on to a trolley or wheelchair. Upgrading one of these WCs to disabled standard in each of the locations noted above would help disabled people to feel included, whilst making an economic provision. This WC could also be used by others. Additionally, the inclusion of a bidet in the WC associated with the pre-discharge recovery areas might also serve to reduce proliferation of facilities.
- 2.46 Individual projects will need to balance the amount of sharing of facilities to meet functional requirements while still ensuring the maintenance of privacy and dignity required in the DSU.

Hospital clinical and operational policies

- 2.47 General guidance on Hospital clinical and operational policies is set out in SHPN 03 – 'General design guidance'. The following paragraphs describe clinical and operational requirements specific to a DSU, and should be used in conjunction with the guidance given in SHPN 03.



Catering

- 2.48 Patients, at the discretion of nursing staff, should have the opportunity to receive light refreshments, such as sandwiches or toast, and beverages, for consumption during the pre-discharge period. Cold water dispensers and ice making machines should be provided. Project teams should decide whether the service provided to patients should be extended to escorts.
- 2.49 It is unlikely that staff in a DSU will attend the hospital staff dining room for main meals. Facilities are therefore required in the DSU where staff can relax, and prepare and consume snacks and beverages.

Supply, storage and disposal

- 2.50 An effective balance of distribution of supplies between main and local stores in the unit is important. For example, the distribution of sterile trays and packs between the central store and the individual theatre preparation rooms holding only the requirements for one operating session within a preparation room.
- 2.51 Similarly with holding items for reprocessing or disposal. For example, bags of soiled linen and bags of waste are held only temporarily, within each theatre utility, before being taken to the appropriate hold area to await collection.
- 2.52 Disposal of products of conception will also require special attention.

Sterile services

- 2.53 It is anticipated that an SSD will provide a service to the DSU which includes:
- processing instrument trays/packs required by the operating theatres;
 - cleaning and disinfecting specific items of medical equipment;
 - when agreed locally, the scheduled servicing needs of the medical equipment being cleaned and disinfected in the SSD.
- 2.54 Facilities may be required in the DSU for:
- cleaning, disinfecting and securely storing endoscopes not suitable for processing in the SSD;
 - automatically emptying, cleaning and disinfecting suction bottles. (Suction bottles should be of a design that uses disposable liners, thus avoiding the risk of staff exposure to body fluids).

Clinical services

- 2.55 It is assumed that clinical service departments in an ATH or a DGH will be responsible for the provision of appropriate clinical services to the DSU.



Staff changing

2.56 If central or zonal changing accommodation is used, it will be necessary to provide within the unit:

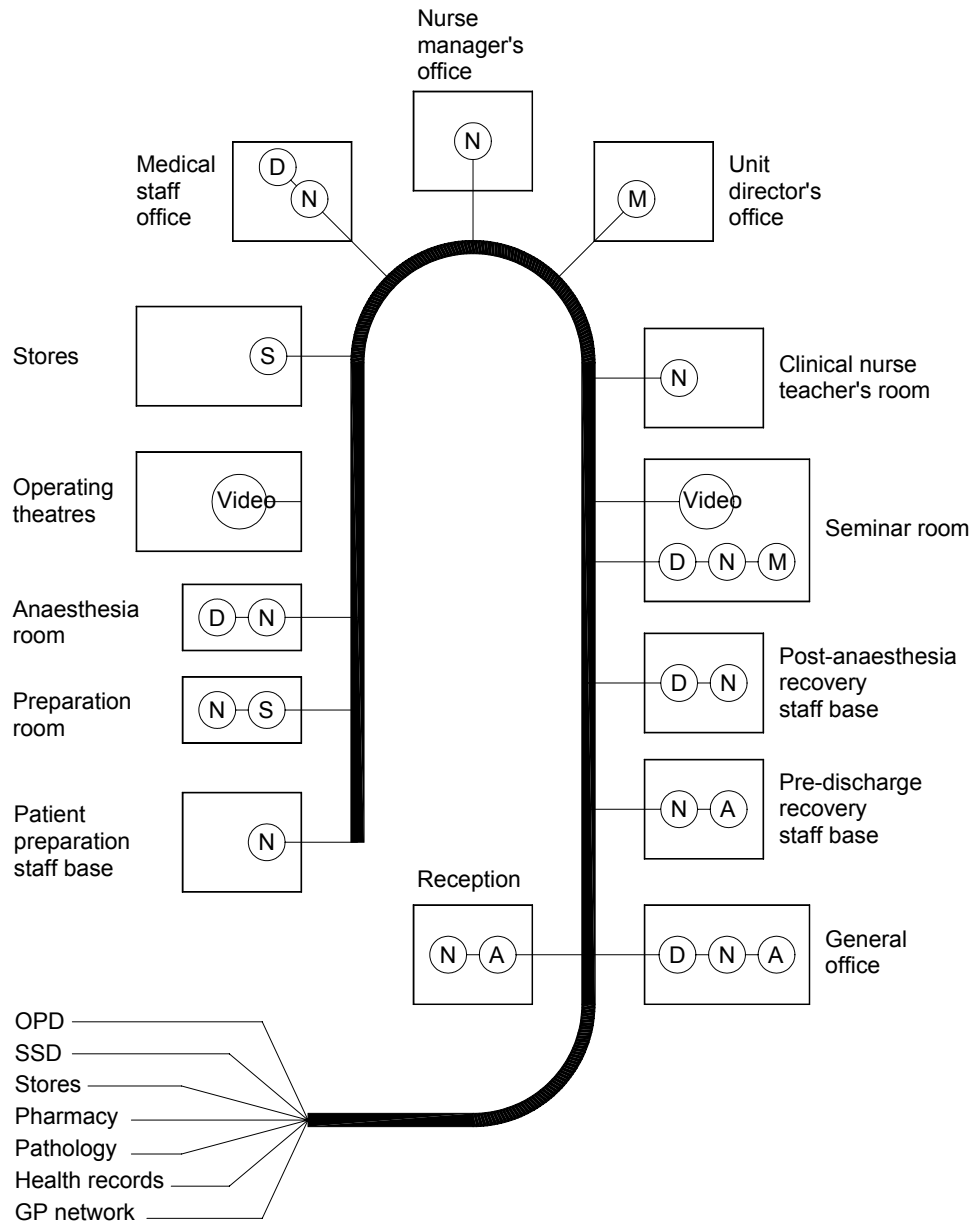
- facilities for theatre staff to change;
- small lockers for securely storing small items of personal belongings;
- toilet facilities.

2.57 It is assumed that all staff who need to change will do so in the unit. This Note describes changing accommodation, including staff change/locker rooms, showers and WCs for use by staff (see [paragraphs 3.116 to 3.119](#)).

Information handling

2.58 Information management and technology (IM&T) is fundamental to the successful operation of a DSU. Systems selected should offer a wide range of facilities, and be consistent with local and NHSS IM&T strategies. Further guidance is given in SHPN 03 – ‘General design guidance’.

2.59 [Figure 2](#) illustrates a comprehensive IM&T network for a DSU: a glossary which explains the meaning of the terms used on the Figure is included in Chapter 7 [Appendix 2](#).



Key to IT station functions

Doctor

- Orders
- Results
- Clinical coding
- Word processing
- GP contact
- Waiting lists
- Appointments
- Health records

Nurse

- Patient assessment
- Care planning
- Staff rosters
- Orders
- Results
- Community contact
- Appointments
- Health records

Manager

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

Administration

- Appointments
- Health records
- Non-clinical orders
- Electronic mail
- Waiting lists

Stock

- Stores
- SSD
- Pharmacy

Figure 2: IT network diagram: Consistent with National NHS Information Management and Technology Strategy



3. Specific functional and design requirements

Introduction

- 3.1 This Chapter describes in greater detail the individual spaces in a Day Surgery Unit.

Relationships of spaces

- 3.2 [Figure 3](#) identifies the relationships of spaces and groups of spaces described in this Chapter.

Description of accommodation

Main entrance canopy

- 3.3 Patients and escorts should be able to easily find the DSU on arrival at the hospital. The entrance canopy may be designed to be sufficiently conspicuous to attract attention.
- 3.4 It is not expected that ambulances will routinely deliver or collect patients but occasionally this may be necessary. 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

- 3.5 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 allow pushchairs and wheelchairs to pass. The lobby should have a floor covering which will trap dirt carried by footwear and on wheels, and can be easily cleaned.

Main entrance foyer

- 3.6 The foyer provides circulation space between the draught lobby and the main patient routes leading to the reception counter and the main waiting area, and from the pre-discharge recovery areas. The foyer should be large enough to allow people to move about with ease, including those in wheelchairs and those using walking aids.

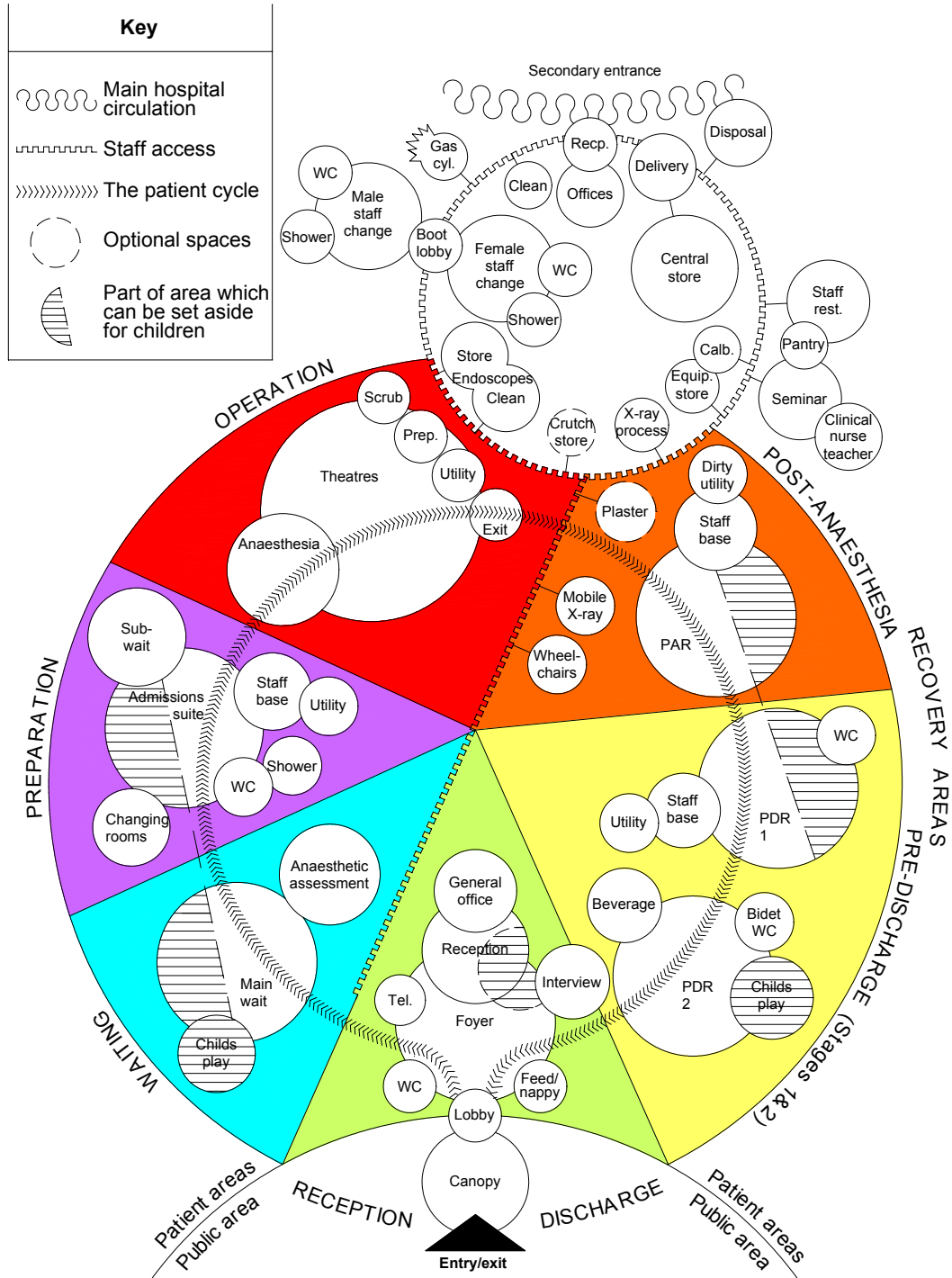


Figure 3: Functional relationship diagram



- 3.7 The WC/wash for escorts and visitors (see [paragraph 3.134](#)), the baby feeding and nappy changing room (if provided, see [paragraph 3.135](#)) and a public telephone (see [paragraph 3.136](#)) should be located with entry direct from the foyer and be easily accessible to patients and escorts entering and leaving the unit.
- 3.8 The foyer should be large enough to allow people to move about with ease, including those who are disabled, in wheelchairs and using walking aids. Chairs be should provided for patients waiting for their escort or for transport.

Reception counter

- 3.9 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.
- 3.10 The main function of receptionists will be receiving, registering and scheduling patients and their escorts upon arrival. 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 VDUs, 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 in respect of patients as telephone calls are a distraction and may be inappropriate to conduct in front of patients.
- 3.11 The reception counter should be located and designed so that:
- there is easy access from the foyer;
 - it is obvious to patients and escorts when entering the main waiting area;
 - seated receptionists can see all patients and escorts entering the unit and in the main waiting and play areas;
 - there is direct access to the general office;
 - there are two heights to the counter top:
 - (i) for wheelchair and child patients;
 - (ii) standing height for occasional writing.

General office

- 3.12 An office is required immediately adjacent to, and opening off, the reception counter area to provide the administration and communication centre of the unit. Provision of Type 5 and/or Type 6 office work-stations (see Health Building Note (HBN) 18 - ‘Office accommodation in health buildings’) are 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 health care system, preparation of reports and analysis of statistics. VDUs 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 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.

- 3.13 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).
- 3.14 It is assumed that a separate health records trolley is used for the health records of patients attending on one day. Accordingly, in a small DSU, the trolley will hold relatively few records and, in a large DSU, the trolley will be full.
- 3.15 Access to patient records and theatre lists should be limited to appropriate members of staff. It is essential that the store can be locked, particularly important when the general office is not occupied.

Main waiting area

- 3.16 Patients and escorts will appreciate a large 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 elderly people and children. Parker Knoll type chairs help patients to relax. The layout should be informal. There should be space for a patient in a wheelchair and for people using walking aids. Project teams may wish to consider the provision of low level background music and/or a TV/video system. These may help patients relax, alleviate the boredom of essential waiting, particularly for children, and mask confidential discussions. 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 suitable for both sexes should be available in a well-designed holder. Coffee tables and racks to display health education leaflets should also be provided.
- 3.17 The main waiting area should have direct access from the foyer, be overseen by the reception counter and have easy access to patient changing rooms. The main waiting area should be sized on the basis of an effective appointments system. [Appendix 3](#) identifies the assumptions made in assessing the area included in the Schedules of Accommodation detailed in [Chapter 6](#).



Play area (main waiting)

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

- be “en-suite” with the main waiting area;
- if possible have access to an external play area, (see SHPN 45 - ‘External works for health buildings’).

Supervision, especially of the external play area, may be required.

Pre-admission assessment clinic

3.19 A pre-admission assessment clinic is required for the assessment of patients prior to their visit to the DSU for surgery. The patients may be ambulant or in a wheelchair. The clinic should comprise several multi-purpose assessment/interview rooms. The rooms should be located with convenient access from the main waiting area.

3.20 Each room should be large enough to accommodate an examination couch, and a desk and chairs and be equipped with venepuncture equipment, filing cabinet, small cupboard and worktop and electronic scales. A computer terminal should be provided at the desk to enable direct input to a patient’s record.

Patient changing rooms

3.21 Changing rooms are required where a patient can undress in privacy and put on theatre clothing, as necessary. Both male and female accommodation should be provided and for a two theatre unit eight changing cubicles and 24 lockers will be required in total. Good ventilation is essential.

3.22 In the interests of maintaining a non-clinical environment as far as possible, each patient changing room should include a domestic-style vanity unit, with a hand rinse basin and mirror. A large cupboard for holding theatre clothing should be located within the changing room area. Patient changing cubicles should not be cramped. All cubicles should be capable of accommodating a person in a wheelchair. Project teams may wish to consider the provision of low-level background music.

3.23 There are various ways of handling patients’ clothing and personal effects. Project teams will need to work out their own method. Here it is assumed that clothing and personal effects will be stored in a locker within the changing room area and the key retained by the patient unless a general anaesthetic is required, in which case the key will be taken by a member of staff and locked in a key cupboard in the admissions suite until the patient is ready to dress after recovery.



Consulting, examination and admissions rooms

- 3.24 Admissions rooms are required where a patient can as necessary:
- be admitted and where the admissions process (nursing, surgical and anaesthetic) takes place;
 - have certain pre-operative procedures undertaken;
 - relax and wait until it is time to be escorted to the theatre suite;
 - use a patient/nurse call system.
- 3.25 The admissions rooms should be adjacent to the main waiting area, changing rooms and patient toilet facilities. The admissions suite staff should be located within the admissions room. Patient flow will be assisted if there is easy access from the admissions rooms to the operating theatre suites. The admissions suite should comprise separate male and female rooms, each containing a number of trolley bays separated by solid partitioning to facilitate visual and auditory privacy. The bays should be curtained at the front. Each bay should be large enough to take a standard patient trolley, with sufficient space on both sides for staff and equipment, and have oxygen, suction and nurse call facilities.
- 3.26 A computer terminal, workspace, controlled drugs cupboard, drugs cupboard shelving and storage cupboards are required in each room. A key safe, to secure locker keys handed over by patients. Patients should be advised not to take money, jewellery and other valuables into the DSU, but a small secure cupboard to store items inadvertently brought along may be required.
- 3.27 The number of bays required should be determined locally. The key factor will be the patient throughput of the operating theatres. [Appendix 3](#) identifies the assumptions made in assessing the number of trolley bays included in the Schedules of Accommodation (see [Chapter 6](#)). Large rooms may be divided into two smaller rooms with interlinking doors to allow greater flexibility of use.

Sub-wait area

- 3.28 It is recognised that there are a number of options relating to patient movement and where patients, once changed and prepared for surgery, may wait. Waiting should be in comfort and take place in the admissions suite, thereby minimising the number of moves a patient is required to make before reaching the operating theatre. Some patients prefer to wait with other patients. Project teams may decide, therefore, to provide separate male and female open sub-wait areas where patients can wait together until it is time to be taken to the operating theatre. The sub-wait areas should be located on an outside wall with windows to provide daylight and views out, and should be equipped with Parker Knoll type chairs, coffee tables, magazine racks and racks to display health education leaflets, and television.



Admissions suite staff base

3.29 It is important for the staff base to oversee the patient changing rooms, admissions suite and, where provided, the patient sub-waiting areas. The staff base acts as a focal point for staff who will be managing the preparation of patients, prior to their operation. Facilities needed at the staff base include:

- a writing surface;
- communications equipment, including a VDU and keyboard;
- storage space for stationery, linen and drugs;
- space for holding health records of patients.

3.30 A member of staff will collect each patient, with their health record and where appropriate an escort, from the main waiting area and will accompany them to a patient changing cubicle and on to the admissions suite.

WCs (admissions suite)

Patient

3.31 WC facilities for male and female patients should be provided close to the patient changing rooms. Compartments should be sized to allow assistance in an emergency. The numbers provided must be determined locally, but it must be remembered that patients will be anxious and pre-operative preparation may increase their need.

Disabled people

3.32 A WC with a wash hand basin, easily accessible from the main waiting area, should be provided for use by disabled people who attend, or work in, the DSU.

Patient's shower

3.33 A shower for patient use may be provided. This should adjoin the patient WC facilities, should allow discreet supervision and have a seat and support handrails.

Secondary entrance

3.34 A secondary entrance to the DSU, preferably off the hospital street, will provide a convenient link to the hospital. Dedicating the main entrance for use by adult patients, escorts and visitors, the secondary entrance will facilitate:

- ease of access for staff;
- delivery of supplies and disposal of waste, etc;
- admission of patients to in-patient wards, if necessary;



- access and return of child patients to and from the day care ward of the children's department, where Option 4 (see [paragraph 2.16](#)) is adopted.

3.35 Access at a secondary entrance will need to be secure and 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 whilst 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.

Children's reception

3.36 The children's reception is a project option. It should be located in the secondary entrance by project teams planning a DSU where use by children is limited (see Option 4, [paragraph 2.16](#)). Children coming from the day care ward of the children's department can then enter the DSU, be received in the children's reception and follow a separate flowline from that used by adult patients. Children thus avoid having to enter the DSU via the main entrance, the foyer, the reception counter and the main waiting area.

3.37 As children will have been prepared for day surgery in the children's day care ward, the children's reception should have convenient access to the theatre suite. After surgery and, when appropriate, following a stay in the post-anaesthesia recovery room, children may be returned to the children's day care ward for pre-discharge recovery and discharged via the children's reception and the secondary entrance. In this option, children will not be expected to use the patient changing rooms or the pre-discharge recovery areas used by adult patients.

Operating theatre suites

3.38 The standard of design of, and equipment in, operating theatre suites for day surgery should not be less than that described in Scottish Hospital Planning Note (SHPN) 26 - 'Operating Department'. Project teams need to recognise the heavy use to which day theatres are put and the high throughput of patients during a session. The layout and design of each space should allow staff to perform their duties with ease and to the speed that day surgery demands.

3.39 Patient handling and movement within an operating theatre suite and to the post-anaesthesia recovery room may be achieved in a number of ways. Project teams should determine the method and the equipment to be used at an early stage.

3.40 The best method of patient handling and movement within an operating theatre suite is the use of a day surgery patient trolley, both in the operating theatre and in the post-anaesthesia recovery room, providing the advantage of not having to transfer the patient immediately following surgery. Such trolleys, specifically designed for this purpose, are fully adjustable and will accept a wide range of theatre table accessories. Alternatively, a conventional operating table with,



following surgery, a suitable trolley to transport the patient to the post-anaesthesia recovery room, or, when appropriate, directly to the pre-discharge recovery stage 1 area, may be used.

- 3.41 Selected procedures are more safely undertaken on operating tables, e.g. orthopaedic procedures. Clinical opinion may advocate that one conventional operating table is available for the more complex surgical procedures when selecting to use the day surgery patient trolley for the majority of procedures.
- 3.42 The guidance in this SHPN assumes that a day surgery patient trolley will be used for patient movement throughout. During the time patients are non-ambulant, they will remain on the same day surgery patient trolley. After use, the trolley will be returned to the anaesthesia room.
- 3.43 Project teams should consider the provision of a computerised theatre management system. A Visual Display Unit (VDU) and keyboard should be networked with other computers on the system and conveniently located for use by surgeons, anaesthetists and nurses.

Anaesthesia room/theatre ante-room

- 3.44 Day surgical procedures are of short duration and the throughput of cases per session can be rapid. The utilisation of an operating theatre can therefore be enhanced if each theatre has a dedicated anaesthesia room in support. Patient privacy is also more easily maintained.
- 3.45 Some DSU teams, however, prefer to operate without an anaesthesia room and to have in its place a 'theatre ante-room' or 'minor operations room' where patients can be held for a short time immediately before surgery, where local anaesthetics could be administered and, perhaps, minor operations performed. The choice of anaesthesia room or theatre ante-room is a local option.
- 3.46 While many patients may walk to the anaesthesia room, some will arrive in a wheelchair or on a trolley. Children may be accompanied by a member of the paediatric nursing team, often with a parent as an escort. The patient will be assisted onto the awaiting day surgery patient trolley.
- 3.47 Day surgery may be performed under oral or intravenous sedation, or local or general anaesthetic. Pre-operative procedures, including the administration of the required form of sedation or anaesthetic, will commence when the patient is lying comfortably on the day surgery patient trolley. Diathermy pads and monitoring equipment will be attached. Different operative procedures may influence where certain pre-operative procedures are undertaken, for example, a local anaesthetic may be given once the patient is in the operating theatre. The design and layout of the anaesthesia rooms and the operating theatres should be capable of accommodating the different approaches.
- 3.48 Ideally, all anaesthesia rooms should be identical, and not handed, with a work top and storage units for anaesthesia accessories, sterile supplies and infusion fluids located to the patient's left hand side. The worktop should be lit by a concealed source. Services, such as piped medical gases, medical vacuum



outlets and the anaesthetic gas scavenging system, should be located on the right. A separate surface is required for writing and for computer equipment, if in use. Wall-outlets, mounted on the side wall opposite to the worktop, are preferred to ceiling-mounted service pendants.

- 3.49 A lockable cupboard should be provided for the temporary storage of Controlled Drugs issued to the anaesthetist for an operating session. Local policy may however dictate that a Controlled Drugs cupboard be located in each anaesthesia room. Some drugs may require refrigerated storage.
- 3.50 A mobile examination lamp may be required in the anaesthesia room for certain clinical procedures. It should be possible to vary the level of general lighting. In order to avoid direct glare to a patient lying on a trolley, ceiling light fittings should be positioned towards the sides of the room rather than centrally. A decorative scene on the ceiling can help to relax and reassure the patient.
- 3.51 Double doors should open into the anaesthesia room from the corridor and into the operating theatre. They should be capable of standing in the open position, be wide enough to admit a day surgery patient trolley with attachments, and close quietly. The patient is usually moved feet first into the operating theatre. Privacy and the maintenance of an undisturbed environment are of great importance. Access doors should therefore be fitted with glazed obscurable panels.
- 3.52 A clock with sweep second hand should be located above the entrance door leading to the operating theatre. A sink is required for clinical hand washing and rinsing anaesthesia instruments. It should be located at the end of the room adjacent to the operating theatre.

Operating theatre

- 3.53 The following arrangements usually occur for most specialities in day surgery. Patients may walk directly into the operating theatre or be brought in on a patient trolley and transferred to the operating table. The patient, scrub team and anaesthetist occupy a central area, together with the equipment being used for the operative procedure. The remaining space is used by staff in support of the surgical team. Observations made of the position and activities of surgical teams at work suggests that the shape of the operating theatres should be approximately square.
- 3.54 Day surgery may be performed under oral or intravenous sedation, or local or general anaesthetic. Pre-operative procedures, including the administration of the required form of sedation or anaesthetic, will commence when the patient is lying comfortably on the operating table. Diathermy pads and monitoring equipment will be attached. Different operative procedures may influence where certain pre-operative procedures are undertaken, for example, a local anaesthetic may be given in the anaesthesia room/theatre ante-room. The design and layout of the operating theatres should be capable of accommodating the different approaches.



- 3.55 Electrical outlets, medical gases, medical vacuum outlets and the anaesthetic gas scavenging system should be suspended from the ceiling and must be suitably located for the anaesthetist and the surgeon. Additional facilities, such as lighting controls, X-ray viewing screens, a clock with sweep second hand and a swab count record board, are usually arranged on a theatre control panel where they may be easily viewed by staff. If used, provision for computer-related activities, including a desk or work surface and chair, will be required. A work surface or table will also be required for processing specimens and writing medical/nursing notes.
- 3.56 A lockable cupboard should be provided in each operating theatre for the storage of Controlled Drugs issued to the anaesthetist for an operating session. Some drugs may require refrigerated storage. A small refrigerator should therefore be located in the theatre or the adjoining anaesthesia room/theatre ante-room.
- 3.57 A high level of general lighting should be provided, together with special ceiling-mounted main and satellite luminaires to illuminate the operative area. A clear height of in excess of three metres between the finished floor level and the ceiling is required to allow unrestricted adjustment of the operating luminaires and other ceiling mounted equipment. Designers require to check with manufacturers for the specific ceiling heights required.
- 3.58 Natural daylight is appreciated by staff and may be supplied, where this is possible, directly by windows or, if no other means is possible, by means of borrowed light from windows across corridors. In some situations, the requirements of privacy may dictate the use of obscured glass to prevent onlookers, at a higher floor level, being able to observe the activities taking place in an operating theatre. Windows should not be openable and should be sealed to the external environment and be capable of being blacked out completely. The blinds should be positioned outwith the theatre and be designed to ensure easy access to the inside and outside of the window, for cleaning purposes.
- 3.59 Doors through which a day surgery patient trolley, or operating table, will pass should be wide enough to allow their easy access with attachments, and should be capable of standing in the open position. They should also be wide enough to allow large X-ray equipment (e.g. large image intensifiers) to pass through. Doors should be fitted with vision panels. The panels in the doors communicating with the anaesthesia room/theatre ante-room and exit bay should be obscurable. All doors should be capable of closing quietly.
- 3.60 Where X-ray equipment, including mobile image intensifiers, and laser equipment are to be used the design and construction of operating theatre suites must be approved by the local radiation protection adviser and by the local laser protection adviser.
- 3.61 Doors with X-ray protection are heavy and attention should be paid to the design of the hinges to enable frequent and rapid use with ease. Consideration may be given to installing motorised doors.



- 3.62 Lead aprons, thyroid guards, lead goggles and gloves worn by staff remaining with the patient during an X-ray procedure and patient protection sheets are held on mobile racks in the mobile X-ray equipment bay.
- 3.63 Staff and the patient must wear appropriate eye protection when laser equipment is in use. The appropriate eye protection should be readily available at the entrance to the area in which laser equipment is in use. "Laser in use" warning signs are required at all entrances to the operating theatre with a view to preventing the entry of unauthorised persons. Door vision panels require laser proof screens. Operating theatre windows require laser proof blinds with electrical interlocks to the laser machine. 'Guidance on the safe use of lasers in medical practice' was published by TSO in 1984.
- 3.64 Project teams may wish to consider the provision of low level background music.

Operating microscopes

- 3.65 Project teams and surgeons who will use an operating microscope should carefully select the most suitable model for the DSU. If the microscope is to be used by several surgical specialities, possibly for a limited period of time in more than one of the operating theatres, then a mobile microscope is likely to be preferred. The problems presented by sharing, transportation and storage of a bulky but delicate microscope must then be addressed.
- 3.66 Alternatively, a ceiling-mounted microscope can be provided in one operating theatre which can then be reserved for use by the specialists requiring the facility. In this instance, the project team and the surgeons should consider the extent to which theatre sessions can be programmed to suit all users.
- 3.67 Problems associated with the size and weight of an operating microscope, and the importance of locating it exactly where required, will need to be examined by the design team. Consideration should also be given to the possibility that sources of vibration are present in the environment.
- 3.68 The guidance given in this SHPN assumes that the operating microscope will be mobile.

Scrub-up and gowning

- 3.69 Each operating theatre should have a dedicated scrub-up and gowning area. The space should lead directly into an operating theatre without intervening doors. Staff will scrub and then put on a sterile gown and gloves, assisted by a circulating nurse. It should be possible for one person to gown and glove while others are still scrubbing. The number of staff scrubbing at any one time may vary but is unlikely to exceed three. The scrub team should have sight of a clock and, if possible, the operating theatre should be within view.
- 3.70 Shelving for sterile packs of gowns and gloves, sufficient for at least one session, is required. The shelves should not be positioned over the trolley on



which an open gown pack is presented, or be exposed to accidental splashing from the scrub sink. Provision is required for the collection of used hand towels and pack wrappers.

Preparation room

- 3.71 In the interests of good practice, each operating theatre should have its own preparation room. The room should be large enough to allow a scrub nurse and assistant to prepare pre-set instrument trays on trolleys. It is assumed that the scrub nurse will have used the facilities provided in the scrub-up and gowning room. The doorway to the operating theatre should be wide enough to permit the safe passage of a prepared trolley without compromising the sterility of the covering drape.
- 3.72 Sterile instrument trays and packs may be delivered from the central store to the preparation room on a sessional basis using a sterile services department (SSD) trolley, and be held on shelving until required. Supplementary packs and items such as suture materials and a range of non-sterile medical supplies will be stored in the preparation room. Sterile fluids may also be stored here. The storage arrangements in a preparation room deserve special consideration as staff, often under pressure and in an emergency, must be able to quickly locate a pack or item. All preparation rooms should therefore have a common layout to include adjustable shelving and space for instrument trolleys and bowl stands. In each preparation room, shelving space should be reserved for the storage of items peculiar to the operating theatre served. Dependent on need, each preparation room may have its own fluids warming cabinet or alternatively, one conveniently located cabinet may be adequate to serve all theatres.
- 3.73 Preparation rooms should be easily accessible from the central store. Once emptied of the supplies being delivered, the SSD trolley may be moved to the theatre exit bay to await collection of used instrument trays.

Utility room

- 3.74 Cleaning equipment used to mop the operating theatre floor between cases is held ready for use and cleaned in the utility room. Buckets are filled and emptied. Soiled linen, waste and other miscellaneous items generated during each operative procedure are bagged and held for a temporary period in the utility room prior to being taken to the appropriate hold area to await collection. Surgeons wishing to examine a specimen often do so in this space.
- 3.75 A slophopper sink, drainer and facilities for clinical hand washing are required. Shelves should be provided to hold a working stock of disposal bags and specimen containers and forms. There must be a work surface for using the specimen ledger. A refrigerator is also required and a large container for pathology specimens that do not require to be refrigerated. Both should be located where theatre staff and porters can have easy access. Autodisinfectors may be required for both flexible and rigid equipment. Hook clips for the vertical storage of mop handles are required.



- 3.76 This space should be adjacent, and have access, to the operating theatre it supports. Access from the main circulation route is required for the delivery of clean working stock items and for the removal of bagged items for reprocessing or disposal.

Cleansing/disinfecting room

- 3.77 In recognition of the problems associated with the use of glutaraldehyde, project teams should give consideration to following the trend of using autoclavable endoscopes. Where this is not possible, a cleansing/ disinfecting room is required for cleaning and disinfecting endoscopes considered not suitable for reprocessing in the SSD. If local policy elects, suction bottles can be automatically emptied, washed and disinfected here. Dependent on local usage, a sink unit with two sinks and double drainer, an automated endoscope washer/disinfector and an automated suction bottle washer/disinfector should be provided. Clinical hand washing facilities are also required.
- 3.78 Glutaraldehyde is hazardous substance. It is recognised to be toxic, irritant and allergenic. Care should be taken to avoid inhalation, and also skin and eye contact. The machine should be located in a well ventilated room with a minimum of 5 air changes per hour. More detailed guidance on its use and on safety precautions are included in [paragraphs 5.8 to 5.10](#).
- 3.79 Storage is required for appropriate personal protective equipment such as hazardous spill kits, nitrile gloves, goggles, impermeable aprons and respiratory protection suitable for use when mixing and dispensing solutions of glutaraldehyde. This equipment should be kept near the autodisinfector but not in the same room. Access may be required by the Fire Brigade.
- 3.80 The cleansing/disinfecting room should adjoin each operating theatre or, if practical, each group of theatres.

Exit bay

- 3.81 An exit bay may be shared between two operating theatres. When shared, the area should be sufficient for parking two patient trolleys without inhibiting the movement of staff and equipment. Equipment cupboards and medical gas isolating valves for each operating theatre may be located in the exit bay.
- 3.82 Space is required to park an SSD trolley in which instrument trays, and other items for reprocessing, can be loaded following use. If additional SSD trolleys are to be parked elsewhere, it will facilitate loading for them to be close to the operating theatres. Loaded trolleys are transferred to the soiled returns hold to await collection.

Equipment cupboards

- 3.83 Cupboards are required in close proximity to each operating theatre for the storage of the operating table accessories needed for one session and other appropriate items in frequent use. The cupboards should be fitted with



adjustable shelving, hooks and attachments. An equipment horse may be provided as an alternative to a cupboard.

Mobile X-ray equipment bay

- 3.84 A space to accommodate a motorised mobile X-ray unit, a mobile image intensifier with TV monitor and video recorder on a trolley, and an X-ray protective apron rack, should be provided with easy access to the operating theatres. Facilities are required for charging the batteries of the motorised machines. The bay should be sufficiently large to allow equipment to be manoeuvred easily.

Darkroom

- 3.85 A darkroom will not be necessary if access to a main X-ray department is available. If this facility is not present, exposed X-ray film may be processed in an automatic bench-top daylight processor. The space should be equipped with power and water supplies and a sink with a drainer. Storage is required for a small quantity of chemicals.

Post-anaesthesia recovery room

- 3.86 The post-anaesthesia recovery room must be located close to the operating theatres. Anaesthetists retain responsibility for their patients during the post-operative period. Patients who may require the urgent attention of the anaesthetist will be admitted to the post-anaesthesia recovery room to be observed closely by staff specially trained in recovery procedures. Thereafter these patients will be transferred to the adjacent pre-discharge recovery stage 1 area. Patients not requiring the degree of care and observation provided in the post-anaesthesia recovery room will be transported from the operating theatre directly to the pre-discharge recovery stage 1 area.
- 3.87 The number of patient trolley positions required in a post-anaesthesia recovery room varies significantly depending on:
- the number of operating theatres;
 - the case mix in a session;
 - the ratio of cases in a session treated under general and local anaesthetic.
- 3.88 To provide for present and future uncertainties in connection with the case mix and the ratio of cases, and for child and adult patients to be accommodated separately if they attend concurrently, an allowance of two patient trolley positions per operating theatre, plus one as a “cushion”, would appear to be adequate.
- 3.89 The floor area of the post-anaesthesia room should be sufficient to allow easy manoeuvring of trolleys without inconvenience to staff or patients. There should also be sufficient space to ensure patient privacy.



- 3.90 [Appendix 3](#) identifies the assumptions made in assessing the area included in the Schedules of Accommodation in [Chapter 6](#).
- 3.91 Each trolley bay should be provided with the required number of electrical outlets, oxygen and medical vacuum outlets, shelving for patient monitoring equipment, gloves, tissues, bowls etc, a staff emergency call system and other services. Each trolley should be in an individual cubicle separated by ceiling hung curtains.
- 3.92 Dependent on local policy, escorts may be permitted to rejoin patients as they recover. Child patients may also be accompanied by a member of the paediatric nursing team.
- 3.93 The post-anaesthesia recovery room must be mechanically ventilated since the air is polluted by exhaled anaesthetic gases. Windows, particularly with a pleasant outlook, can greatly assist recovery of patients and the well being of staff. Windows should be designed to protect privacy, e.g. one-way vision glazing. Curtains or blinds will be required to block out daylight for patients who wish to sleep. Indirect lighting should be provided to avoid patients looking up into ceiling luminaires.
- 3.94 In order to facilitate the movement of patients, and also staff in an emergency, the post-anaesthesia recovery room must be located in close proximity to the operating theatre suites. Additionally, it should have direct access to the pre-discharge recovery stage 1 area. Good access and egress for patient trolleys is vital.
- 3.95 Space should be provided in the post-anaesthesia recovery room, preferably in close proximity to the staff base, for parking mobile equipment, including defibrillation equipment, a resuscitation trolley and an examination lamp.

Post-anaesthesia staff base

- 3.96 The staff base should be located in a central position within the post-anaesthesia recovery room and provide a focal point from where staff can communicate with other areas in the DSU. Space is required for equipment associated with computer-related activities. Shelving accommodates the working stock of sterile packs, linen and disposable items required for immediate use. A Controlled Drugs cupboard will be needed. A staff call system should also be provided.
- 3.97 Clinical handwash facilities are required and a separate sink for processing equipment.

Dirty utility

- 3.98 Space and facilities are required in the DSU for holding a working stock of bedpans, urinals and vomit bowls, and for disposing of their contents. However, as the major need is most likely to be associated with the activities of post-anaesthesia recovery, the principle locational relationship of the dirty utility



should be with the post-anaesthesia recovery room. The dirty utility should also be accessible from patient preparation and pre-discharge recovery areas.

- 3.99 Trolleys and other equipment used for clinical procedures may be cleaned here. Materials to be reprocessed, or for disposal - for example SSD returns, soiled linen and soiled dressings, may be held here for a temporary period before being taken to the appropriate hold area to await collection. Hand washing facilities must be available in this space.

Pre-discharge recovery areas

- 3.100 Various arrangements for patient recovery, other than that in the post-anaesthesia recovery room, are currently in operation. The guidance provides for pre-discharge recovery to take place in two stages.
- 3.101 For pre-discharge recovery stage 1, a patient has a trolley or reclining chair in an individual curtained cubicle. Patients who have had an operation under a local anaesthetic will be moved from the operating theatre directly to the pre-discharge recovery stage 1 area on a day surgery patient trolley, in a wheelchair or on foot. Patients from the post-anaesthesia recovery room will remain on a trolley, perhaps for up to six hours, after transfer to the pre-discharge recovery area and before progressing to a Parker Knoll type chair.
- 3.102 Each cubicle should be provided with service outlets, including oxygen and medical vacuum, a patient/staff call system and a suitable chair for use by an escort. The patient will return, accompanied by a member of staff, to the changing room to dress in privacy, when fit to do so, before moving to the pre-discharge recovery stage 2 area. The pre-discharge recovery stage 1 area should be as non-clinical in appearance as recovery functions permit. It should have direct access to and from the post-anaesthesia recovery room and be located as close to the changing rooms as possible to facilitate collection of clothes etc. In addition, an easy access route from the operating theatres is required.
- 3.103 The pre-discharge recovery stage 2 area is a type of open lounge, furnished with informally-arranged seating and occasional tables. This area should be located in close proximity to the main entrance by which patients will leave after discharge. Patients complete their pre-discharge recovery here and are prepared for discharge. Light refreshments and beverages should be available, and project teams may wish to consider the provision of low level background music and/or a TV/video system. An area where children can play safely, similar to that provided in the main waiting area, is required en-suite with the pre-discharge recovery stage 2 area.
- 3.104 [Appendix 3](#) identifies the assumptions made in assessing the areas of the pre-discharge recovery areas included in the Schedules of Accommodation (see [Chapter 6](#)).



Pre-discharge recovery staff base

- 3.105 A staff base is required, as a focal point, within the pre-discharge recovery areas. It should be located in a dominant position capable of overseeing both the stage 1 and stage 2 areas. Patients and escorts should be able to easily identify the staff base. Space is required for equipment associated with computer-related activities.
- 3.106 Administrative duties associated with pre-discharge recovery and discharge, and communications with other spaces/areas within the DSU, will take place at the staff base. A work station including a large desk top is therefore required. Shelving should be provided to accommodate a working stock of linen, sterile supply and disposable items required for procedures undertaken during recovery. Clinical hand washing facilities are required.
- 3.107 Each patient will receive post-operative instructions and may be issued with prescribed drugs or medicines. Storage facilities including a drugs cupboard for medicinal products should be provided at the staff base. On discharge, the patient's health records will be placed on a parked health records trolley prior to being returned to the unit's general office.

Beverage bay

- 3.108 A beverage bay where staff can prepare light refreshments and beverages should be provided en-suite with, or adjacent to, the pre-discharge staff base. Facilities for storing crockery and cutlery and for washing-up, a catering toaster and a refrigerator, are required. Consideration may be given to installing a snack/beverage vending machine, water dispenser and ice making machine.

WCs (pre-discharge areas)

Patient

- 3.109 WC facilities for male and female patients should be provided in association with the pre-discharge recovery areas. A bidet should be included with one of the WCs. Compartments should be sized to allow assistance in an emergency.

Disabled people

- 3.110 A WC with a wash hand basin, easily accessible from the pre-discharge recovery areas, must be provided for use by disabled people who attend, or work in, the DSU.

Staff change/locker room

- 3.111 The guidance in this document assumes that:
- all staff will change within the unit;



- personal hospital and/or unit uniforms will be issued elsewhere in the hospital;
- theatre clothing will be issued in the unit.

- 3.112 Separate staff change/locker rooms are provided for men and women. In the staff change/locker rooms, staff change from outdoor clothing to a uniform or theatre clothing and store outdoor clothing and other personal items. A full size locker is required for each member of staff.
- 3.113 Racking is required for the issue of theatre clothing. Personal full length lockers for the secure storage of dry outer and middle garments, footwear and small items of personal belongings are also required. Hanging rails, with security, for the storage of wet outer garments and lockers for large items of personal belongings should be provided. Used uniforms and theatre clothing will be deposited in a soiled linen trolley.
- 3.114 Project teams should consider providing electronic security locks on access doors to staff change/locker rooms.

Boot lobby

- 3.115 Experience has shown that storage and washing of theatre boots requires special consideration. Easily accessible boot racks are required where clean and dirty footwear can be stored separately and tidily. Facilities in the cleaner's room should be used for washing boots. Mechanical extract ventilation is required.

Staff sanitary facilities

- 3.116 Sanitary facilities, including WCs with hand wash basins, and a shower, should be located adjacent to the staff change/locker room. Separate facilities are required for male and female staff.

Staff rest room

- 3.117 Rest room facilities are required where theatre staff can relax and take beverages and snacks. Project teams may determine how the total space available should be allocated. One large common room, sufficiently large to accommodate all staff at one time, may be preferred or, alternatively, the total space may be divided to provide two rooms.
- 3.118 Rest rooms should have windows, with a pleasant outlook, be comfortably furnished and include a telephone. Rest rooms should have direct access to the pantry.



Staff pantry

- 3.119 Pantry facilities are required, adjacent to the staff rest room, 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, a small electric water boiler, a microwave cooker, a work-top with cupboards, an automatic dishwasher and a hand-wash basin.

Seminar room

- 3.120 The demands of theatre discipline and the nature of the work in a DSU are such that staff cannot easily leave the unit when it is operational. A seminar room may therefore be needed within 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 white board, 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 link the seminar room with one of the operating theatres.
- 3.121 Provision of an interview room within the DSU is a project option. If a seminar room is not included, a similar facility should be available elsewhere in the ATH or DGH.

Unit director's office

- 3.122 This office is the administrative base for the unit director. It should be sufficiently private for confidential discussions between staff, and interviewing patient's escorts. The office should accommodate one Type 3 office work-station (see HBN 18 - 'Office accommodation in health buildings') with VDU and keyboard, telephone, seating for up to three other persons and storage for books and files. If possible, the room should be located on an external wall and have a window.

Nurse manager's office

- 3.123 The nurse manager requires similar office facilities to those provided for the unit director.

Medical staff office

- 3.124 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. A telephone is required. If possible, the room should be located on an external wall and have a window.



Interview room

- 3.125 An interview room should be provided where interviews and discussions can take place in privacy. It should be located convenient for use by patients as they enter and leave the DSU in order to facilitate easy access for pre and post-operative 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. The room must be accessible to disabled staff, patients and visitors.

Central store

- 3.126 Most supplies for use within the DSU should be received in the central store and arrangements made for them to be redistributed to user areas in accordance with local procedures. The store should be subdivided into an area for the storage of general consumables, disposables and stationery, with a sterile supplies section for holding sterile instrument trays and packs from the SSD, commercially-produced items and clean linen. Controlled Drugs must not be held in the central store. Racking and adjustable shelving in the sterile supplies section should conform in size with that used in the SSD. Sufficient space is required to permit the unloading and parking of SSD delivery trolleys. Space for the delivery of clean linen is also required.
- 3.127 A small administrative area should be included. A desk, storage space for files and a VDU and keyboard will be required.
- 3.128 The central store should have easy access from the secondary entrance to the unit through which supplies will be delivered and be close and have easy access to the preparation and utility rooms.

Main equipment store

- 3.129 The main equipment store accommodates bulky items of equipment which are not in frequent use or are being held as replacements. The equipment to be stored here will depend on the surgical specialities using the DSU but may include:
- anaesthetic machine/trolley;
 - anaesthetic ventilator;
 - diathermy machine;
 - mobile examination lamp;
 - surgical laser;
 - suction machine;
 - uterine aspirator;
 - automatic CO2 insufflator, with stand;



- dental drill trolley;
- cryo pencil stand;
- mobile surgical microscope;
- bipolar coagulation units;
- bronchoscopy nebuliser trolley;
- IV drip stands;
- patient trolleys (spare);
- TV/video units.

3.130 Most of the items are floor standing, although a small amount of shelving should be provided for the smaller items. Some equipment will be delicate and costly and, therefore, sufficient space is required for manoeuvring to permit easy retrieval, with doorways wide enough to allow the largest items to pass freely. The equipment store should be easily accessible from the operating theatres.

Equipment service room

3.131 Facilities are required within this room for user-servicing as defined in the user manuals supplied by equipment manufacturers, supplemented by any formal locally agreed instructions. Such local instructions may require the provision of additional facilities. This room should also be used by visiting electronic and medical engineering (EME) technicians to carry out minor scheduled or unscheduled servicing. The space provision should be sufficient to park and manoeuvre equipment, including an image intensifier, and accommodate a work bench with integral lockable cupboards, preferably in a self-contained room or space. A hand wash basin and a deep sink should also be provided. It is recommended that manufacturers' user manuals are kept in this room. The supply to socket-outlets should be provided via a residual current protected circuit device, and emergency power isolation buttons should be installed at the workbench and adjacent to the room entrance. Medical gas outlets supplying oxygen, medical compressed air and vacuum should also be provided. Nitrous oxide, together with gas scavenging facilities, may be provided as a project option. Some items of equipment may require decontamination in the SSD prior to scheduled servicing elsewhere. Local policy will identify where this will be undertaken, for example, in the SSD and/or EME department.



Medical gas cylinders store

- 3.132 A dedicated “ready-use store” in which gas cylinders for use with anaesthetic machines and anaesthesia ventilators may be stored. It should conform with the requirements of SHTM 2022 - ‘Piped medical gases, medical compressed air and medical vacuum installations’. At least one wall of this store should, where practical, be external, thus facilitating natural ventilation and the inclusion of “blow-out” panels. The store must be equipped with cylinder racks which conform with BS EN 850 – ‘Transportable gas cylinders pin-index, yoke-type valve outlet connections for medical use’ and are capable of holding the full range of gases used in the unit. The design of the store should facilitate identification of the type of cylinder, and the control of full and empty cylinders.

Unit cleaners’ room

- 3.133 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 washing facilities are also required. Shelving and vertical storage should not encroach on the working space or restrict access to the cleaner’s sink. Not requiring a close relationship with any particular area within the unit, the cleaners’ room should be located away from the principal routes used by patients. The door to the room must be lockable. A locked cupboard for the safe storage of cleaning materials etc should be provided within the room. In PFI/PPP projects the Facilities Management Provider should be consulted regarding the brief for this room.

Escort and visitor WC

- 3.134 Escorts and visitors to the unit should have access to toilet facilities separate from those reserved for patient use, possibly located off the main entrance foyer.

Baby feeding and nappy changing room

- 3.135 Provision of a baby feeding and nappy changing room, where a baby can be breast or bottle fed and have a nappy change, in privacy, is a project option. If included, the room should have easy access from the main waiting and pre-discharge recovery areas, possibly located off the main entrance foyer. Seating, facilities to dispose of soiled nappies and other waste, and for hand washing, are required.

Public telephones

- 3.136 Patients and escorts are likely to need the use of a telephone. Public telephones will be required and should be located with easy access from the main waiting and pre-discharge recovery areas. A fixed payphone should be provided in the foyer. Payphone socket-outlets should be provided in the pre-discharge recovery areas 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.

Crutches and splint store

- 3.137 Provision of a store for crutches and splints is a project option. The need for a crutches and splints store should be determined locally and will be influenced by the surgical specialities using the DSU, most significantly orthopaedic surgery.

Wheelchair park bay

- 3.138 Most patients attending the DSU will be ambulant, with wheelchair users having their own wheelchair. Patients may be moved within the unit by wheelchair, for example, from the operating theatre to pre-discharge recovery stage 1 area following surgery under local anaesthetic. A few patients may need the use of a wheelchair when leaving the unit. A bay for parking unit wheelchairs should be conveniently, but discreetly, located close to the operating theatres and the pre-discharge recovery areas.

Soiled linen hold

- 3.139 Closed bags containing soiled linen generated mainly in the operating theatre suites and staff changing rooms will be held to await collection for reprocessing. The bags should be easily identified, using a colour code system, in accordance with local policy.

Soiled returns hold

- 3.140 Loaded with used instrument trays and other appropriate items, SSD trolleys will await collection.

Disposal hold

- 3.141 A considerable amount of waste paper, empty cartons and general refuse will be generated in the unit. Bagged refuse, possibly contaminated, and “sharps” in containers are held to await collection for disposal. Bagged items should be identified appropriately, using a colour code system, in accordance with local policy. Broken glass and used batteries will also be stored here in boxes.
- 3.142 The activities of the soiled linen hold and soiled return hold may be combined in one space with the disposal hold. In this instance the total floor space should be clearly sub-divided in order that the three 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 accidentally taken for disposal by incineration.
- 3.143 The hold area(s) should be located near the exit from which collections will be made.



- 3.144 Project teams should determine the anticipated maximum load on the space, for example, the largest number of bags of soiled linen and refuse and SSD trolleys 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 too small, consideration may be given to increasing the frequency of collection as an alternative to providing a larger hold.

Switchcupboard and battery enclosure

- 3.145 A unit switchcupboard, with lockable doors, housing the main isolators and distribution fuse switchgear, and a separate enclosure housing emergency lighting batteries and automatic battery charging equipment, should be:
- accessible directly from a circulation area (access space may be part of the circulation area);
 - sited away from water services.
- 3.146 The switchcupboard, where possible, should be sited within the unit and the battery enclosure central to the operating theatre suite. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised during maintenance, from passing traffic or the opening of adjacent doors. The battery enclosure will require ventilation and this can be achieved naturally if it is located on an outside wall.



4. General functional and design requirements

Introduction

- 4.1 This Chapter contains guidance which supplements the general guidance given in SHPN 03 – ‘General design guidance’. The latter should be implemented as appropriate for the project under consideration.

Internal environmental conditions

Floors - operating theatres

- 4.2 Floors in operating theatres have to withstand harsh treatment, including:
- the rolling loads on heavy mobile equipment, such as movable operating tables;
 - frequent routine washing with detergent;
 - less frequent but regular hard cleaning, often using scrubbing machines;
 - stain removal using specific cleaning agents;
 - treatment with phenolic agents.

Operating theatre floor finishes should be able to withstand staining from iodine compounds.

- 4.3 Floor finishes are of four kinds: rigid tiles; flexible tiles; sheet; and cast in-situ. Where a rigid tile or cast in-situ finish is used, the floor structure, as well as the floor screed, should not be liable to a degree of movement or deflection which would cause the finish to crack, or the joints between tiles to open. Structural expansion joints should be located outside the operating theatre suite.
- 4.4 Joints in flexible sheet or flexible tile flooring should be welded. Such flooring is tolerant of small movements in the structural floor. The floor screed must be perfectly smooth, crack-free and stable. Adhesives must be powerful enough to resist the formation of “waves” in the floor finish which can result when heavy equipment is moved. Thresholds at doorways between adjacent rooms are points of stress in the floor finish, and their design requires particular attention.
- 4.5 The comfort of people who work in the operating theatre should be considered. A resilient light-coloured matt finish is preferred. However yellow, green and perhaps blue may make patient assessment more difficult.



Anti-static flooring

- 4.6 The 'Report of a Working Party to Review the Anti-static Requirements for Anaesthetising Areas', (1990), recommends that project teams should consider, in consultation with the Department of Anaesthesia, whether they wish to use flammable anaesthetic agents. If the trend to dispense with these agents is followed, no anti-static provision will be necessary. However, in view of the historical position on the subject, suitable warning notices must be displayed.

Ventilation - operating theatre suites

- 4.7 A conventional air conditioning system which provides a supply of filtered air at a controlled temperature and humidity to the operating theatre suites will be required to the standards set in SHPN 26 - 'Operating department'. (See also [paragraphs 5.11 to 5.20.](#))
- 4.8 The area of space required to accommodate the ventilation plant and the associated maintenance and inspection space is considerable. The architect and the structural and services engineers should agree an appropriate size and location at an early stage of the design work.

Anaesthetic gas scavenging

- 4.9 It is Departmental policy that pollution of the operating theatre suites and the post-anaesthesia recovery room by anaesthetic gases should be minimised. (See also [paragraphs 5.31 and 5.32.](#))

Controls for heating and ventilation

- 4.10 It must be possible to control air conditioning, ventilation and heating in each part of the DSU independently of other parts. Controls should either be on a central panel in the general office or in each individual room. Heating should be thermostatically controlled with an override in each area.



5. Engineering services

Introduction

- 5.1 This Chapter describes specific engineering services requirements for a day surgery unit (DSU). It complements the general engineering services guidance given in SHPN 03 – ‘General design guidance’. The combined guidance should not inhibit the design solution, but will acquaint the engineering members of the multi-disciplinary design team with the design criteria and material specification needed to meet the functional requirements.

Maximum demands

- 5.2 As a guide and for preliminary planning purposes only, the following table gives the estimated demands for a two operating theatre DSU.

<i>Service</i>	<i>Typical max. demand</i>	<i>Notes</i>
Heating/ventilation/DHWS (kW)	250	
Domestic HWS (l/s)	2.8	Storage 1,680 litres (2 hour recovery)
Cold Water (l/s)	1.8	Storage 4,200 litres (24 hour supply)
Supply ventilation (m ³ /s)	3.6	
Extract ventilation (m ³ /s)	3.5	
Refrigeration, chilled water (kW)	26	
Electrical (kVA)	17	Includes essential 10kVA
Medical gases (l/min)		
Oxygen	250	
Nitrous oxide	200	
Vacuum	240	
Compressed air (7 bar)	350	
AGS	480	



Mechanical services

Heating

- 5.3 Heating throughout the unit, including the operating theatres, 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

Ancillary accommodation

- 5.4 Operating theatre areas will be air-conditioned (see [paragraph 5.11](#)) but some other areas will be mechanically ventilated.
- 5.5 The post-anaesthesia recovery room should be mechanically ventilated at a rate of 15 air changes per hour to reduce and remove anaesthetic gas pollution.
- 5.6 The supply plant for ancillary accommodation should be separate from operating theatre plant.
- 5.7 Careful consideration needs to be given to air movement within the operating theatres and adjacent areas to limit the spread of smoke in the event of a fire.

Substances hazardous to health

- 5.8 Where solutions of glutaraldehyde are used for disinfection, “local exhaust ventilation may be required” (see Safety Action Bulletin SAB (92)17).
- 5.9 To ensure compliance with the OES, disinfection of endoscopes with solutions of glutaraldehyde should be carried out in a cabinet which has a separate mechanical ventilation extract system. The room containing the cabinet should also be mechanically ventilated. More comprehensive guidance is contained in ‘Control of Glutaraldehyde in Health Care Premises by Local Exhaust Ventilation’.
- 5.10 The current occupational exposure standard (OES) for glutaraldehyde is 0.05ppm.

Operating theatre

- 5.11 The ventilation system for each operating theatre suite should be designed in accordance with SHTM 2025 - ‘Ventilation of healthcare premises’. The guide describes, with worked examples, the methods for calculating the supply air volume, heating, cooling and humidification loads, air flow patterns and controls.



Where appropriate, and if not water cooled, the heat emission of laser equipment should be included in the calculation.

- 5.12 The supply air volume to the operating theatres should not normally exceed one cubic metre per second. This air should be diffused within the room to provide a uniform air change rate within the space. Effective air diffusion can normally be achieved by using well-spaced ceiling-mounted air diffusers.
- 5.13 Terminal filters at diffuser outlets are not required.

Operating theatre - plant

- 5.14 The design and installation requirements of the operating theatre suite ventilation plant should comply with SHTM 2040 - 'The Control of Legionellae in Health Care Premises - A Code of Practice' and the general recommendations set down in SHTM 2025 - 'Ventilation of healthcare premises'.
- 5.15 There are economic and operating advantages in providing a single air-handling plant per operating theatre suite. Each plant should be capable of maintaining the specified summer and winter design environmental conditions in all but exceptional external ambient conditions.
- 5.16 The recirculation of air is not recommended. Alternative methods of reducing energy consumption, for example, "run around coils", should be considered.
- 5.17 Pre and main filters should be provided in accordance with the Design Guide. Filters must be readily accessible and provided with pressure-differential alarm indication.
- 5.18 Cooling loads are best met using chilled water generated from remote central plant where aspects of control, part load, noise, vibration, space and building structure can more effectively be accommodated and economically provided.
- 5.19 Air-cooled condensers must be used for heat rejection from refrigeration plant.
- 5.20 Steam is the recommended medium for humidification. Project teams should evaluate the alternative methods of providing steam, e.g. central steam plant from the hospital system to local steam generators, with a view to achieving maximum cost and energy efficiency. Water treatment may be necessary.

Plant control and indication

- 5.21 Subject to the agreement of the infection control officer, the ventilation system serving each operating theatre suite may be turned off during periods of non-use. Each operating theatre suite should, therefore, have independent systems to permit separate switching. The design, however, should ensure that the overall supply and extract systems remain in balance when one or more operating theatres are switched out of use. These systems will need to be reinstated in advance of the operating session. This can be accomplished by the building management system or sensors which detect the presence of staff within the particular operating theatre suite. The system should be automatically



reinstated if the space temperature falls below 10°C. Under these conditions, humidification should not be provided. It is not considered necessary to set an upper temperature limit at which the ventilation should be reinstated.

- 5.22 The surgeon's panel in each operating theatre should include plant status indication, temperature and humidity indicating gauges and the means of adjusting the set points for theatre temperature and humidity. The panel should also include the air sampling duct which contains the temperature and humidity sensors.
- 5.23 The controls should enable plant serving the post-anaesthesia recovery room and other areas to run in parallel with or independently of each operating theatre system as necessary. These options should also include low pressure hot water radiator systems.

Hot and cold water services

- 5.24 A suitable supply of water and drainage may be required to dissipate the heat generated by laser equipment.

Deionized/sterile water

- 5.25 The quality of water required for rinsing endoscopes which have been passed through a washer/disinfector is discussed in detail in SHTM 2030, but key factors include hardness, temperature, ionic contaminants, microbial population and bacterial endotoxins. The endoscope washer/disinfector is classed as a medical device and detailed guidance on the application of medical devices legislation should be sought from the Medical Devices Agency.

Piped medical gases and vacuum

- 5.26 Guidance generally on piped medical gas systems and gas storage is contained in SHTM 2022. Additionally, oxygen and vacuum should be provided to each bay in the pre-discharge recovery stage 1 area.
- 5.27 The "ready-use store" should be clearly labelled to prohibit the storage of flammable anaesthetic gases.
- 5.28 The supply to the unit and to each operating theatre should be capable of isolation.
- 5.29 The two articulated motorised service pendants in each operating theatre should be connected to the piped medical gases and vacuum systems.
- 5.30 An outlet air pressure of 7 bar is required for surgical tools. The supply can be provided by a small, dedicated, automatic compressor. No reserve supply is required as the air is not used in a life support role.



Anaesthetic gas scavenging

- 5.31 BS 6834: 1987 - 'Active Anaesthetic Gas Scavenging Systems' (AGS), recommends a dedicated gas disposal unit which, under fault conditions, will not permit excess pressure in, or extract gas from, the breathing system.
- 5.32 An AGS terminal unit should be provided wherever nitrous oxide or other inhalational agents are used for anaesthetic procedures. In the post-anaesthesia recovery room, nitrous oxide/oxygen may be used for analgesic purposes but an AGS system is not practical. Pollution by exhaled anaesthetic gases in this room is controlled by the mechanical ventilation system.

Electrical services

Operating theatre suites

- 5.33 General advice is contained in the CIBSE Lighting Guide LG2.
- 5.34 Semi-recessed or recessed luminaires to IP54 should be provided in the operating theatre and the minor operation, utility, preparation, and scrub and gowning rooms. The general lighting in each operating theatre suite should be connected to at least two separate circuits on the essential electrical supply.
- 5.35 An adjustable operating table luminaire comprising a main and satellite fixture which comply with the requirements of BS 4533: Parts 102.55 and 103.2, should be provided. These luminaires should be designed to operate at 24V AC/DC. The recommended minimum mounting height is 3m above floor level. Each operating table luminaire and its satellite should be supplied by a separate circuit.
- 5.36 The emergency electrical supply for the operating table luminaires should be supplied from a battery source having automatic charging facility. These provisions should be located in a separate, locked and, if necessary, ventilated enclosure, within close proximity of the operating theatre suites to minimise the cable voltage drop. Adequate battery capacity should be provided to maintain the main and satellite lamps for a minimum period of one hour. Automatic changeover facilities should be incorporated to provide a "no-break" supply to the operating table luminaires in accordance with the requirements of SHTM 2011.
- 5.37 Operating table luminaires and service pendants should be independently supported from the building structural system. Early advice should be obtained from the structural engineer.

Illuminated signs

- 5.38 The laser/radiation protection adviser should be consulted to determine the need for illuminated signs and interlocks between equipment and doors. Where required, the sign lamp should give a clear indication in red when equipment is



energised and may incorporate the legend “Do not enter”, visible only when illuminated. All warning lamps should have incandescent filaments energised from a suitable power source within the room and switched via appropriate devices interlocked with the operation of the equipment. Further advice is contained in BS EN 60825 , ‘Radiation Safety of Laser Products, Equipment Classification, Requirements and User’s Guide’ (1992).

Socket-outlets and power connections

- 5.39 Socket-outlets in the operating theatres and the post-anaesthesia recovery room should be connected to essential circuits in accordance with SHTM 2011.
- 5.40 Advice on the power supply and requirements for mobile radiodiagnostic equipment is contained in SHTM 2007.

Socket-outlets for minor scheduled servicing of medical equipment

- 5.41 Socket-outlets for user servicing of medical equipment, see Health Equipment Information (HEI) 98 – ‘Management of Medical Equipment and Devices’, within a designated area of the equipment service room may also be used by a visiting electronic and medical engineering (EME) technician to carry out minor scheduled servicing. The layout within the designated area should, therefore, ensure that no adventitiously earthed metallic structure, such as radiators or pipes, is within easy reach of the operator sitting at the bench.
- 5.42 Shuttered socket-outlets should be connected via a local emergency trip. This circuit should be protected by a core balance earth leakage protective device having a nominal tripping current not exceeding 15mA and complying with the requirements of BS 4293. In addition, a master emergency trip should be provided outside the entrance to the room. A shrouded earth terminal should also be provided at one end of the bench. The socket-outlets should be mounted in plastic trunking and all metallic fixings should be isolated from earth.
- 5.43 A plastic chain and stanchion or equivalent should be available to enclose the designated area when the visiting technician is carrying out “live working procedures”. Socket-outlets, outside this area, should have a notice warning that earth leakage protection is not provided.

Secondary entrance

- 5.44 A door security intercommunication system is required between the secondary entrance and reception counter to prevent unauthorised entry, whilst permitting free movement of staff. The system should provide for verbal communication with, and an electro-magnetically operated door lock to be controlled from, the reception counter.
- 5.45 An override, located inside the secondary entrance, can provide staff with a convenient exit route for normal work or in the event of fire. The lock should disengage on initiation of the fire alarm system.



Note: A relaxation of the Building Standards (Scotland) Regulations may be required.

Staff location system

- 5.46 The hospital staff location system should be extended to include this unit.

Patient/staff and staff/staff call systems

- 5.47 Patient/staff call points should be provided at each patient changing cubicle, consulting/examination area and at every trolley/bed/chair bay in recovery areas and pre-discharge areas. Call points should also be located in all patient toilets.
- 5.48 Staff/staff call points should be provided in every room in the DSU. Alarms should be muted in the operating theatre or indicated by a flashing light.

Wireways

Telephones

- 5.49 In recovery and adjacent areas telephones should be fitted with indicating call lights, bells or buzzers of subdued tone and muting switches.
- 5.50 Direct Inward Access (DIA) lines should be provided to telephone instruments located in the general office/reception, for patients' appointments, and the staff base. At least one Direct Dialling Inward (DDI) line should be provided in a DSU.
- 5.51 Intercommunication between the reception counter, the general office, staff bases and other areas can be provided by the telephone system. Abbreviated dialling can be used for a range of frequently-called extension numbers.
- 5.52 Each operating theatre should be provided with a splashproof line jack unit and a wall-mounted "hands-free" telephone with volume control.

Data links

- 5.53 A CCTV wireway should be provided to link an operating theatre to the seminar room. These links should use compatible communications trunking and separate conduits to terminal positions wherever possible.

Electric clocks

- 5.54 Operating theatre clocks should display "real time", "lapsed time" and have a sweep second hand. Anaesthesia room/theatre ante-room and operating theatre clocks should be synchronised.



Music and television

- 5.55 Outlets for background music should be provided in the main waiting area, assessment clinic, admissions suite, operating theatres and pre-discharge recovery stage 2 area. Television outlets should be provided in the main waiting area and the pre-discharge recovery stage 2 area and the seminar room, and may be supplied from the hospital system.



6. Schedules of accommodation

- 6.1 The following schedules are based on the text in [Chapter 3](#), and are illustrative of the acceptable accommodation for the functional units detailed.
- 6.2 The Schedules include Essential Complementary Accommodation (ECA) and Optional Accommodation and Services (OAS). For a definition of these terms and for an explanation of the use of dimensions and areas and the provision of circulation space, communications space and engineering space, please refer to SHPN 03 – ‘General design guidance’.



Para No	Activity space	Space area sq.m.	2 theatres		4 theatres	
			Qty	Total Area sq.m	Qty	Total area sq.m.
Entrance and reception						
3.5	Draught lobby	11.0	1	11.0	1	11.0
3.6	Foyer		1	27.5	1	36.0
3.9	Reception		1	9.5	1	13.5
3.12	General office	14.0	1	14.0	1	14.0
3.13	Records trolley store	2.5	1	2.5	1	2.5
3.16	Main waiting		1	40.0	1	80.0
3.18	Play area		1	13.0	1	18.0
3.32	Disabled wc/wash – type 5	4.5	1	4.5	1	4.5
3.134	Visitors' wc/wash – type 3	3.0	1	3.0	1	3.0
Pre-admission assessment clinic						
3.19	Assessment/interview room	13.5	2	27.0	2	27.0
Admissions suite						
3.29	Admissions suite staff base		1	10.5	1	10.5
3.21	Male changing room (4 cubicle)	20.0	1	20.0	2	40.0
3.21	Female changing room (4 cubicle)	20.0	1	20.0	2	40.0
3.24	Male consulting, examination and admissions room (4 trolleys)	46.0	2	92.0	4	184.0
3.24	Female consulting, examination and admissions room (4 trolleys)	46.0	2	92.0	4	184.0
3.28	Sub-wait area	10.0	2	20.0	4	40.0



Para No	Activity space	Space area sq.m.	2 theatres		4 theatres	
			Qty	Total Area sq.m.	Qty	Total area sq.m.
Patient pre-discharge areas						
3.101	Pre-discharge recovery: stage 1		1	83.0	1	145.5
3.103	Pre-discharge recovery: stage 2		1	22.0	1	40.0
3.103	Pre-discharge recovery play area		1	13.0	1	18.0
3.105	Pre-dis. recovery staff base/utility	10.5	1	10.5	1	10.5
3.108	Beverage bay	8.0	1	8.0	1	8.0
3.138	Wheelchair parking bay	1.5	1	1.5	1	1.5
Patients' sanitary facilities						
3.31	Patients' wc/wash – type 3	3.0	2	6.0	2	6.0
3.109	Patients' wc/bidet/wash – type 7	4.0	1	4.0	1	4.0
3.32/	Disabled wc/wash – type 5	4.5	1	4.5	1	4.5
Operating theatre suites						
3.44	Anaesthesia room/theatre ante-room	15.0	2	30.0	4	60.0
3.53	Operating theatre	40.0	2	80.0	4	160.0
3.69	Scrub-up and gowning	10.0	2	20.0	4	40.0
3.71	Preparation room	12.0	2	24.0	4	48.0
3.74	Utility room	10.0	2	20.0	4	40.0
3.77	Cleansing/disinfecting room	11.5	1	11.5	1	11.5
3.81	Exit bay	19.5	1	19.5	2	39.0
3.83	Equipment cupboard	0.5	2	1.0	4	2.0
3.84	Mobile x-ray equipment bay	5.5	1	5.5	1	5.5
3.86	Post-anaesthesia recovery room		1	48.0	1	65.0
3.96	Post-anaesthesia staff base/utility	8.0	1	8.0	1	8.0
3.98	Dirty utility	6.5	1	6.5	1	6.5
3.111	Male staff changing/locker room		1	23.0	1	30.5



Para No	Activity space	Space area sq.m.	2 theatres		4 theatres	
			Qty	Total Area sq.m.	Qty	Total area sq.m.
3.111	Female staff change/locker room		1	23.0	1	30.5
3.115	Boot lobby	8.0	1	8.0	1	8.0
3.116	Staff wc/wash – type 1	2.0	2	4.0	4	8.0
3.116	Staff shower – type 4	2.5	2	5.0	2	5.0
3.117	Staff rest room		1	16.0	1	22.5
3.119	Staff pantry	7.0	1	7.0	1	7.0
3.122	Unit director's office	11.0	1	11.0	1	11.0
3.123	Nurse manager's office	9.0	1	9.0	1	9.0
3.124	Medical staff office	12.0	1	12.0	1	12.0
3.126	Central store		1	59.0	1	83.5
3.129	Main equipment store	21.5	1	21.5	1	21.5
3.131	Equipment service room	10.0	1	10.0	1	10.0
3.132	Medical gas cylinder store	7.0	1	7.0	1	7.0
3.133	Unit cleaners' room	7.0	1	7.0	1	7.0
3.141	Disposal hold		1	6.0	1	8.0
3.145	Switch cupboard		1	3.0	1	4.5
3.145	Battery cupboard		1	3.0	1	4.5
	Net total			1067.5		1694.0
	ADD – planning provision 5%			53.4		84.7
	Sub-Total			1120.9		1778.7
	ADD – engineering zone 3%			33.6		53.4
	ADD – circulation 27%			302.6		480.2
	Gross Total			1457.1		2312.3
	Departmental areas			1458.0		2313.0



Essential Complementary Accommodation

Para No	Activity space	Space area sq.m.	5%	3%	27%	Total area sq.m.
			Planning sq.m	Engineering sq.m	Circulation sq.m	
3.125	Interview room	6.0	0.3	0.2	1.5	8.0

Optional Accommodation and Services

Para No	Activity space	Space area sq.m.	5%	3%	27%	Total area sq.m.
			Planning sq.m	Engineering sq.m	Circulation sq.m	
3.33	Patients' shower – type 4	2.5	0.1	0.1	0.8	3.5
3.36	Children's reception	5.0	0.3	0.2	1.6	7.0
3.85	Darkroom	6.5	0.3	0.2	1.8	8.8
3.120	Seminar room	22.0	1.1	0.7	6.2	30.0
3.135	Baby feeding/nappy changing room	5.5	0.3	0.2	1.6	7.5
3.137	Crutches and splint store	2.0	0.1	0.1	0.3	2.5



7. Appendices

Appendix 1: A method for calculating the number of operating theatres required in a day surgery unit

Appendix 2: Information management and technology network diagram (Figure 2) – Glossary

Appendix 3: Numbers and areas of key spaces

Annexe to Appendix 3



Appendix 1

A method for calculating the number of operating theatres required in a day surgery unit

Introduction

1. Appendix 1 provides a method which may be used to calculate the number of operating theatres required in a day surgery unit. The method is illustrated by worked examples.

Definitions

Workload per annum

2. The **workload per annum** is the number of day surgery cases to be performed in the operating theatres of the day surgery unit.

Workload capacity of one operating theatre

3. The **workload capacity of one operating theatre** is the number of day surgery cases per annum that can be accommodated in one operating theatre.

Method

Workload per annum

4. The workload per annum must be forecast locally. In estimating the future number of day surgery cases, 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.
5. It may be considered that the workload 'per annum should be a percentage target of the total surgical workload, that is, the workload of operating theatres to be used for day and in-patient surgery.



Workload capacity of one operating theatre

6. The **workload capacity of one operating theatre** is the product of:
 - the average number of cases per working day;
 - the length of the working week;
 - the length of the working year.
7. In identifying the average number of cases per working day, consideration should be given to the length of the working day. This may, for example, include provision for evening sessions.
8. The length of the working week should be at least 4.5 days, reserving 0.5 day for planned preventative maintenance (PPM). Other options are to extend the working week to five or more days and to carry out PPM when the operating theatres are closed.
9. The length of the working year would not be expected to be less than 48 weeks.
10. In calculating the workload capacity of one operating theatre, account should be taken of local variations in the factors identified in [paragraph 6](#), for example, the inclusion of evening sessions. Worked example 2, given at [paragraphs 18 to 20](#), illustrates this point.

The number of operating theatres required

11. The **number of operating theatres required in the day surgery unit is the workload per annum divided by the workload capacity of one operating theatre.**
12. The number of operating theatres required will seldom be an exact whole number. It will generally be necessary to round up the answer to the next highest whole number; this inevitably introduces some spare capacity.
13. If, however, the number of operating theatres only slightly exceeds a whole number (for example, if the figure is 2.1 or 4.2), assumptions should be checked to see if small changes can be made which would make it possible to provide the rounded down number of operating theatres.

Worked examples

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

Worked example 1

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



- workload per annum (number of cases) = 7,000;
- number of cases per working day = 18;
- length of working week in days = 4.5;
- length of working year in weeks = 48.

16. The workload capacity of one operating theatre is $18 \times 4.5 \times 48$ cases = **3,888 cases**.

17. The number of operating theatres required are:

$$\frac{7,000}{3,888}$$

$$= 1.80$$

Rounded up = 2.

Worked example 2

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

- workload per annum (number of cases) = 8,000;
- number of cases per working day = 16;
- length of working week in days = 5;
- length of working year in weeks = 50.
- number of cases per evening session = 6;

number of evening sessions per week = 2.

19. The workload capacity of one operating theatre is

$$(16 \times 5 \times 50) + (6 \times 2 \times 50) \text{ cases}$$

$$= 4,000 + 600 \text{ cases}$$

$$= \mathbf{4,600 \text{ cases.}}$$

20. The number of operating theatres required are:

$$\frac{8,000}{4,600}$$

$$= 1.74$$

Rounded up = 2.



Worked example 3

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

- workload per annum (number of cases) = 10,000;
- number of cases per working day = 16;
- length of working week in days = 4.5;
- length of working year in weeks = 48.

22. The workload capacity of one operating theatre is:

$$16 \times 4.5 \times 48 \text{ cases} \\ = \mathbf{3,456 \text{ cases.}}$$

23. The number of operating theatres required is:

$$\frac{10,000}{3,456}$$

$$= \mathbf{2.89}$$

Rounded up = **3**.



Appendix 2

Information management and technology network diagram (Figure 2) - Glossary

Introduction

1. This glossary explains the meaning of those terms used in connection with “Station functions” on [Figure 2](#) ([paragraph 2.59](#) of this document) that are not self-explanatory.

Orders

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

Results

4. Electronically receiving results of orders ([paragraph 2](#)), direct from clinical service departments.
5. This function may also include the ability:
 - for urgent results to be “automatically” referred for the attention of the responsible clinician;
 - to enquire on a series of results relating to a single patient.

Order communications system

6. The “Orders” and “Results” functions are usually combined in an order communications system.

Clinical coding

7. The process by which clinical information is entered into a computer in a coded form for example:
 - diagnoses;
 - symptoms;
 - treatment.



8. 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.

GP contact

9. A facility to exchange patient information with general practitioners, either by electronic mail or directly by means of a computerised communications network.
10. This facility is also a feature of the NHS IM&T Strategy.

Waiting lists

11. Access to a clinician's waiting list management system.

Appointments

12. Maintaining, or making enquiries of, the appointments systems for the day surgery unit and, for example, the out-patients department.

Health records

13. Access to health records held electronically as text, coded data or digitised Images, for example, X-rays.

Patient assessment

14. 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.

Care planning

15. Access to a system which supports the:
- systematic planning of care, appropriate to a patient's assessed needs;
 - calculation of the amount of nursing resource, and the correct skill mix, necessary to deliver the planned care.

Staff rosters

16. Maintenance of rosters for nursing staff. Computer systems can assist nurse managers in the preparation of rosters.



Nursing management system

17. The “Patient assessment”, “Care planning” and “Staff rosters” functions are usually combined in a single nursing management system.

Community contact

18. A facility to exchange patient information with community, primary care and/or other sectors or agencies, either by electronic mail or directly by means of a computerised communications network. An example would be a link with the social services department.

Decision support

19. 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.

Contracting

20. A facility which enables the activities of a day surgery unit to be monitored against its contracts and assists with the management of extra-contractual referrals.

Non-clinical orders

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



Appendix 3

Numbers and areas of key spaces

Introduction

1. A range of local factors significantly influence the numbers and/or areas of the key spaces in a day surgery unit (DSU) which are the subject of this appendix. In determining the requirements for a particular DSU it is essential that project teams carefully examine the local factors.
2. This appendix is not a sizing methodology. It explains assumptions made as part of the process of assessing the numbers and/or areas of the key spaces included in the schedules of accommodation in [Chapter 6](#).
3. Project teams should challenge the assumptions by comparing them with local factors. The figure, and accompanying text, included as an annexe to this appendix will help project teams to carry out this work.

Main waiting area

4. The principal factor used in assessing the size of the main waiting area was the number of chairs that need to be accommodated.
5. In sizing the main waiting area, it was assumed that:
 - an average of eight patients were treated in each operating theatre in one session;
 - in theory all patients in one session arrive at the same time, in practice their arrival and registration is staggered;all patients were accompanied by one escort.
6. On the basis of the assumptions in [paragraph 5](#), the numbers of chairs required in main waiting areas in day surgery units with one, two, three and four operating theatres are:
 - one operating theatre - 16 chairs;
 - two operating theatres - 32 chairs;
 - three operating theatres - 48 chairs;
 - four operating theatres - 64 chairs
7. It is considered that not all patients will be accompanied by an escort, thus creating some spare capacity.



Patient changing cubicles

8. In determining the number of patient changing cubicles required for two operating theatres, it was assumed that each patient requires approximately 5-10 minutes to change into theatre clothing before proceeding to the admissions suite. It was also assumed that only two patients can be received and registered at one time, a process which also takes 5-10 minutes. Therefore in theory only two changing cubicles are required. However, as both male and female changing accommodation is needed and as, in some cases, longer periods may be required, an additional male and female cubicle has been added to provide a "cushion". Thus two male and two female cubicles are allocated for "incoming" patients. As the changing rooms are also used by "outgoing" patients (who may take longer to change) and there may well be an overlap between morning and afternoon sessions, the number of cubicles has again been doubled.
9. On the basis of the assumptions in paragraph 8, the numbers of changing cubicles required in day surgery units with one, two, three and four operating theatres are:
 - one operating theatre - 4 changing cubicles;
 - two operating theatres - 8 changing cubicles;
 - three operating theatres - 12 changing cubicles;
 - four operating theatres - 16 changing cubicles.

Consulting, examination and admissions rooms

10. All patients are assembled for admissions procedures by the surgical team before the commencement of the first surgical procedures. A trolley space is therefore required for each patient in any one session. Numbers of patients in a session will vary according to the nature of the theatre list. In this document it has been assumed that the average number for a two theatre unit will be 12. However, male and female accommodation will again be required and as their numbers will not be equal, a "cushion" has been allowed and 16 trolley positions allocated. To provide flexibility of use, the 16 trolley bays have been split into 4 rooms of 4 bays each.
11. On the basis of the procedure described in paragraph 10, the number of trolley positions required in day surgery units with one, two, three and four operating theatres are:
 - one operating theatre – 8 trolley positions;
 - two operating theatres – 16 trolley positions;
 - three operating theatres – 24 trolley positions;
 - four operating theatres – 32 trolley positions.



Post-anaesthesia recovery room

12. The number of trolley positions per operating theatre required in a post-anaesthesia recovery room relates to the period of time spent by patients in the operating theatre and in the post-anaesthesia recovery room. If the minimum period of time spent by patients in the operating theatre is longer than the maximum period of time spent by patients in the post-anaesthesia recovery room then provision of one trolley position per operating theatre will be adequate.
13. However, the period of time spent by patients in both the operating theatre and the post-anaesthesia room are influenced by a number of factors and may vary significantly. Additionally, further improvement of day surgery techniques, etc., (see [paragraph 2.5](#)) may influence both periods of time in the future.
14. With a view to accommodating a wide range of variable factors, and also child and adult patients separately when they attend concurrently (see [paragraph 3.88](#)), an allowance of two trolley positions per operating theatre, plus one “spare” trolley position as a “cushion”, would appear to be adequate.
15. On the basis of the rationale noted in [paragraphs 12 to 14](#) above, the numbers of trolley positions required in day surgery units with one, two, three and four operating theatres are:
 - one operating theatre - 3 trolley positions;
 - two operating theatres - 5 trolley positions;
 - three operating theatres - 7 trolley positions;
 - four operating theatres - 9 trolley positions.

Pre-discharge recovery areas

16. In determining the number of pre-discharge recovery positions, it has been assumed that:
 - three patients per operating theatre per hour will need to be accommodated;
 - the average period of time spent by a patient in the pre-discharge recovery area will be two hours.
17. It has also been assumed that patients will spend:
 - about 80 minutes in the pre-discharge recovery stage 1 area;
 - about 40 minutes in the pre-discharge recovery stage 2 area.
18. On the basis of the assumptions in [paragraphs 16 and 17](#), the numbers of pre-discharge recovery positions required in day surgery units with one, two, three and four operating theatres are shown below. (The precisely calculated figure is shown in brackets: the number of positions for which area has been allowed in



the schedules of accommodation ([Chapter 6](#)) is not in brackets and includes a small addition as a “cushion”):

- **one operating theatre:**
total - 8 (6) positions
stage 1 - 5 (4) positions
stage 2 - 3 (2) positions;
- **two operating theatres:**
total - 14 (12) positions
stage 1 - 9 (8) positions
stage 2 - 5 (4) positions;
- **three operating theatres:**
total - 20 (18) positions
stage 1 - 13 (12) positions
stage 2 - 7 (6) positions;
- **four operating theatres:**
total - 26 (24) positions
stage 1 - 17 (16) positions
stage 2 - 9 (8) positions.

Annexe to Appendix 3

Introduction


1. **Figure 4** illustrates patient movement through a theoretical session in relation to a two theatre Day Surgery Unit. The figure is intended to represent a “worst case scenario”, with patients spending short periods of time in the operating theatre and longer than average periods of time in the post-anaesthesia recovery room, thus creating a high demand for space in admissions suite, sub-wait area, post-anaesthesia recovery room and pre-discharge recovery areas. Note: The chart does not show patients requiring only a local anaesthetic.
2. The notional patient movement illustrated in the chart is based on the premise that all patients will be admitted, examined, and prepared for theatre by the operating team before the commencement of the first surgical procedure. For those patients at the end of the list this will result in longer waiting periods between admission and the administration of anaesthetic. The waiting periods should be kept as short as possible by careful planning of the theatre lists and, where possible, by advising patients of the timings of their procedure in advance, possibly as early as their pre-admission assessment.
3. Some Trusts may prefer to keep patient waiting times as short as possible by staggering patient arrivals to a greater degree than shown here, say to 30 minute intervals. Such an arrangement would be more patient focused but would have the disadvantage that the surgeon and anaesthetist may have to leave theatre at some point to examine later patients. This may be unacceptable and could even be contrary to good practice. The choice between longer or shorter waiting times is a project option which must be decided in accordance with Hospital Policy.

Key to figure and explanatory notes


Arrival of staff

4. Staff arrive at 7.00 am


Arrival of patients

5.  represents the arrival of a patient.
6. In theory all patients arrive at 7.30 am. In practice arrivals will be staggered and some patients may have to wait a short period before reception and registration.






7. A vertical line taken down the figure at the point where any one patient enters the operating theatre (represented by ) shows that all patients are in the DSU and in either the admissions suite, sub-waiting, theatre or recovery. This “reserve” of patients should ensure that the operating theatre does not stand idle.


Reception and registration of patients

8. In this notional movement chart it is assumed that the DSU has two reception staff.
9.  represents a period of 5-10 minutes allowed for a patient to be received and registered.
10. Reception and registration includes entry of information on a computer, final preparation of health records and advising patient and escort of operational procedures.
11. Patients are received and registered in the sequence of their arrival.


Waiting by patients

12.    represents periods of time spent waiting by patients. A double line indicates that an escort is waiting with a patient.


Patient changing

13.  represents a period of 5-10 minutes allowed for a patient to change into theatre clothing.
14. Time taken for registration and changing will determine the start of the admissions procedure.

Admission

15.  represents a variable period allowed for admission of the patient and examination and preparation by the operating team.
16. The duration of this period for each individual patient will vary according to the nature of the surgical procedure. Preparation may continue after the initial examination by the operating team.

Administration of anaesthetic

17.  represents a period of six minutes allowed for administration of anaesthetic.
18. Up to and including the administration of anaesthetic, the periods of time required for activities are more-or-less the same for each patient.



Operating theatre time

19. ■ represents the period of time allowed for a surgical procedure.
20. This period of time can vary significantly. The figure illustrates, for theatre 1, a session with relatively short periods of time for surgical procedures.

Preparation of operating theatre

21. ■ represents a period of six minutes after an operation to clean and prepare the operating theatre for the next patient.

Post-anaesthesia recovery

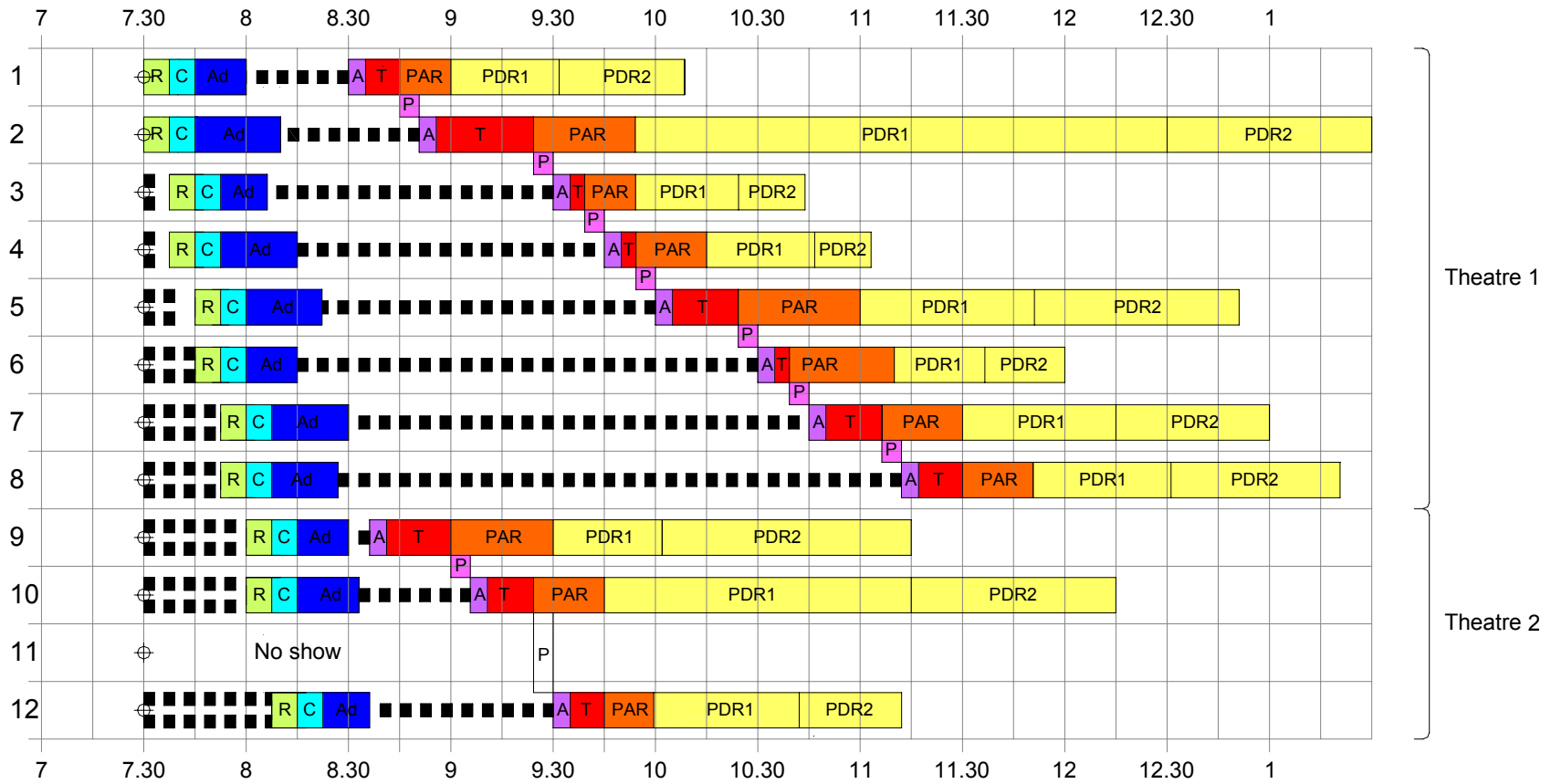
22. ■ represents periods of up to 30 minutes for post-anaesthesia recovery.
23. The peak demand on the post-anaesthesia recovery room occurs between 9.25 and 9.45 am, when three trolley positions are required.

Pre-discharge recovery

24. ■ represents periods of time considered to be on the high side of average for pre-discharge recovery.
25. The figure illustrates that:
- three patients (25%) leave within one hour;
 - seven patients (58%) leave within one hour and 30 minutes;
 - ten patients (83%) leave within two hours;
 - twelve patients (100%) leave within three hours.
26. It should be noted that some patients may require more than four hours for recovery and that pre-discharge recovery areas may therefore not be clear of patients by the time they are required for a later session.
27. It should also be noted that space will be required in pre-discharge recovery for patients who require only a local anaesthetic.

Number of sessions

28. The figure illustrates a session based on an operating period of three hours.
29. A second session could be arranged with an operating period of three hours, say, from 1.00 to 4.00 pm. Last patients would leave between 6.00 and 6.30pm.



By holding a line vertically down this chart at any time, it is possible to assess exactly how many people are in each stage at that time. Examples are given in the text with the key (on the preceding pages).

Figure 4 Notional patient movement chart for two theatre clinic (3 hour session)





References

References are identified by paragraph number.

- 1.5 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 2.5 **A Short Cut to Better Services: Day Surgery in England and Wales.** The Audit Commission for Local Authorities and the National Health Service in England and Wales, 1990.
- 2.10 **Welfare of Children and Young People in Hospital.** Department of Health, TSO 1991.
- 2.13 **Just for the day.** Caring for Children in the Health Services, 1991
- 2.19 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 2.31 **SHPN 52 - Accommodation for day care: Part 2 – Endoscopy unit.** NHSScotland Property and Environment Forum Executive 2001.
SHPN 52 - Accommodation for day care: Part 3 – Medical investigation and treatment unit. NHSScotland Property and Environment Forum Executive 2001.
- 2.43 **Cycling by Design.** ISDN 0748089438 Scottish Executive.
- 2.47 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 2.58 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 3.12 **HBN 18 - Office accommodation in health buildings.** NHS Estates, TSO 1991.
- 3.18 **SHPN 45 - External works for health buildings.** The Scottish Office NHS in Scotland Management Executive, TSO 1994.
- 3.38 **SHPN 26 - Operating department.** The Scottish Office NHS in Scotland Management Executive, TSO 1992.
- 3.63 **Guidance on the safe use of lasers in medical practice.** TSO 1984.



- 3.122 **HBN 18 – Office accommodation in health buildings.** NHS Estates, TSO 1991.
- 3.132 **SHTM 2022 - Medical gas pipeline systems.** NHSScotland Property and Environment Forum Executive 1999.
- BS EN 850 – ‘Transportable gas cylinders pin-index, yoke-type valve outlet connections for medical use’**
- 4.1 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 4.6 **Report of a Working Party to Review the Anti-static Requirements for Anaesthetising Areas.** Department of Health, 1990.
- 4.7 **SHPN 26 - Operating department.** The Scottish Office NHS in Scotland Management Executive, TSO 1992.
- 5.1 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 5.8 **Glutaraldehyde disinfectants: use and management.** Department of Health. Safety Action Bulletin No 81, reference SAB(92)17, 1992.
- 5.9 **Control of glutaraldehyde in health care premises by local exhaust ventilation.** Department of Health. 1992.
- 5.11 **SHTM 2025 - Ventilation of healthcare premises.** NHSScotland Property and Environment Forum Executive 1998.
- 5.14 **SHTM 2040 - The control of Legionellae in healthcare premises – A code of practice.** NHSScotland Property and Environment Forum Executive 1999.
- SHTM 2025 - Ventilation of healthcare premises.** NHSScotland Property and Environment Forum Executive 1999.
- 5.25 **SHTM 2030 – Washer-disinfectors.** NHSScotland Property and Environment Forum Executive 1999.
- 5.26 **SHTM 2022 - Medical gas pipeline systems.** NHSScotland Property and Environment Forum Executive 1999.
- 5.31 **BS 6834: 1987 Specification for active anaesthetic gas scavenging systems.** BSI 1987.
- 5.33 **Lighting Guide : Hospitals & Healthcare Buildings (LG2).** Chartered Institute of Building Services Engineers (CIBSE) 1989.
- 5.35 **BS 4533:1986 Luminaires.** BSI 1986.
- 5.36 **SHTM 2011 - Emergency electrical services.** NHSScotland Property and Environment Forum Executive 1999.



- 5.38 **BS EN 60825. Radiation safety of laser products, equipment classification, requirements and user's guide.** BSI 1992.
- 5.39 **SHTM 2011 - Emergency electrical services.** NHSScotland Property and Environment Forum Executive 1999.
- 5.40 **SHTM 2007 - Electrical services supply and distribution.** NHSScotland Property and Environment Forum Executive 1999.
- 5.41 **Health Equipment Information (HEI) 98 – Management of Medical Equipment and Devices.** Department of Health 1990.
- 5.42 **BS 4293:1993 Specification for residual current-operated circuit-breakers.** BSI 1993.
- 5.45 **SI 2179:1990(S187) The Building Standards (Scotland) Regulations (with subsequent amendments).** TSO 1990.
- 6.2 **SHPN 03 – General design guidance.** NHSScotland Property and Environment Forum Executive 2001.



Publications in Scottish Health Planning Note series

Given below is a list of all Scottish Health Planning Notes. This list is correct at time of publication of this Note, but refer also to the Health Building Notes and Scottish Health Planning Note Reference Guide published by NHSScotland Property and Environment Forum Executive.

- 03 **General design guidance.** NHSScotland Property and Environment Forum Executive 2001.
- 04 **In-patient accommodation: Options for choice.** NHSScotland Property and Environment Forum Executive 2000.
- 08 **Facilities for rehabilitation services.** NHSScotland Property and Environment Forum Executive 2001.
- 27 **Intensive Care Unit.** NHSScotland Property and Environment Forum Executive 2000.
- 35 **Accommodation for people with mental illness Part 1 – The acute unit.** NHSScotland Property and Environment Forum Executive 2000.
- 35 **Accommodation for people with mental illness Part 2 – Treatment and care in the community.** NHSScotland Property and Environment Forum Executive 2000.
- 52 **Accommodation for day care Part 1 – Day surgery unit.** NHSScotland Property and Environment Forum Executive 2001.
- 52 **Accommodation for day care Part 2 – Endoscopy unit.** NHSScotland Property and Environment Forum Executive 2001.
- 52 **Accommodation for day care Part 3 – Medical investigation and treatment unit.** NHSScotland Property and Environment Forum Executive 2001.



Publications in Scottish Hospital Planning Note series

Given below is a list of all Scottish Hospital Planning Notes. Those Notes which have to be read along with their counterpart Health Building Note (HBN) are marked with an *. This list is correct at time of publication of this Note, but refer also to the Health Building Notes and Scottish Health Planning Note Reference Guide published by NHSScotland Property and Environment Forum Executive.

- 1 **Health Service building in Scotland.** TSO 1991.
- 2 **Hospital briefing and operational policy.** TSO 1993.
- 6 **Radiology department.** TSO 1995.
- 12 **Out-patients department (with DBS).** TSO 1993.
- 12 **Out-patients department Supplement A - Activity space data sheets.** TSO 1993.
- 12 **Out-patients department Supplement 1 - Genito-urinary medicine clinics.** TSO 1993.
- 12 **Out-patients department Supplement 2 – Oral surgery, orthodontics, restorative dentistry.** TSO 1996.
- 13 **Sterile services department.** TSO 1994.
- 15 **Accommodation for pathology services.** TSO 1994.
- 20 **Mortuary and post-mortem rooms.** TSO 1993.
- 20 **Mortuary and post-mortem rooms Supplement 1 - Activity space data sheets.** TSO 1994.
- 21 **Maternity department.** TSO 1996.
- 22 **Accident and emergency department in an acute general hospital.** TSO 1995.
- 22 **Accident and emergency department in an acute general hospital Supplement 1 – Trauma care and minor injury.** TSO 1996.
- 26 **Operating department*.** TSO 1992.
- 26 **Operating department Supplement 1 - Activity space data sheets.** TSO 1993.
- 34 **Estate maintenance and works operations*.** TSO 1992.



- 34 **Estate maintenance and works operations Supplement I - Activity space data sheets.** TSO 1993.
- 40 **Common activity spaces Volume 5 – Scottish appendix*.** TSO 1996.
- 45 **External works for health buildings*.** TSO 1994.
- 47 **Health records department.** TSO 1995.
- 51 **Accommodation at the main entrance of a District General Hospital**
.TSO 1992.
- 51 **Accommodation at the main entrance of a District General Hospital Supplement A - Activity space data sheets.** TSO 1993.
- 51 **Accommodation at the main entrance of a District General Hospital Supplement 1 - Miscellaneous spaces in a District General Hospital.**TSO 1992.
- 51 **Accommodation at the main entrance of a District General Hospital Supplement 1A - Miscellaneous spaces in a District General Hospital - Activity space data sheets.** TSO 1993.