

Guide to good practices in hospital administration.

Contributors

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GUIDE TO GOOD PRACTICES IN HOSPITAL ADMINISTRATION

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SOCIETY

This new series of reports is designed to convey the results of the studies of the Management Services (NHS) Branch of the Department of Health and Social Security, and reports of the work of O & M and Work Study Units employed in the National Health Service.

Previously the results of these studies were published under the titles "Hospital O & M Service Reports" and later "Hospital O & M and Work Study Reports". The twelve studies published under these titles are listed inside the back cover. This new series is a continuation of these earlier publications with a new style and lay-out which it is hoped will prove of assistance to authors and readers alike.

Acknowledgements are due to the Architects' Journal and Hospital Management Planning and Equipment for permission to publish the cover photographs.



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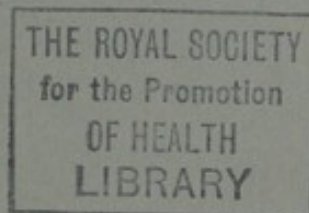
Guide to Good Practices in Hospital Administration

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Guide to Good Practices in Hospital Administration

Department of Health
and Social Security:
London

Management
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Number 1



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Introduction

Over 3000 O & M and Work Studies covering a wide range of subjects have been carried out in the Hospital Service since 1954. They have varied in size and coverage from short local studies of a single hospital activity or department to large scale studies on a national basis at representative hospitals throughout the country. But all of them have added something to an accumulating store of knowledge of good practices and the rewards which can follow their adoption; and of common weaknesses and the penalties which can attend them. This information, derived from completed studies up to 30th June 1970, has now been brought together in the form of a guide to good practices.

Because studies continue to be made and needs continue to change, a condensed guide of this kind can never claim to be definitive or comprehensive. What it achieves is to assemble under various sections, information likely to be of general application in the Hospital Service. To this has been added in each section references to guidance already issued by the Department and lists of relevant documents to help readers who seek more background information. It is intended to publish revised editions from time to time to take account of the results of current and future studies and to include guidance on the scope for particular kinds of pay/productivity schemes to meet varying circumstances, based on knowledge of schemes operating successfully to the benefit of staff and management.

The guide in its present form relates to general hospitals including, for most subjects, those with psychiatric wards. A number of the sections in the guide eg 'Gardens and Hospital Grounds' and 'Engineering and Building Maintenance Services' will be found to have application to large psychiatric hospitals and as further material becomes available, this will be used to augment the guide.

Each section of the guide is self-contained and because of this, information common to more than one activity or department is repeated where appropriate in each section.

The guide owes its original concept to Management Survey, a technique which is being developed for use in the Hospital Service and which relies partly on information accumulated from previous studies. Reference to the guide should in future assist hospital authorities in deciding how best to enlist the aid of this technique. In the meantime, it is hoped that the information presented here will be of general value.

Committee Organisation and Procedure

1

Scope

1. The term Committee Organisation and Procedure includes for the purpose of O & M studies, work which might be described as the general administration of the group but excludes establishment and personnel, financial control, accounting and supplies arrangements to which separate sections of this guide relate.

General Considerations

2. The Management Committee is responsible for the running of the hospitals, subject to any direction from the Secretary of State or RHB and in discharging this duty should take account of the interests of the patient and the public. The Committee determines the extent of the officers' authority, the limits within which officers may incur expenditure without prior approval, and the staff appointments they make. Committee sanction has to be given to numbers of staff which may be employed in the various grades and to any alteration in their numbers. Priorities of expenditure, estimates of income and expenditure, the final accounts and the system of financial control also need Committee approval, as do proposals for new buildings before submission to the Board.

3. The Committee should endeavour to set standards of performance and ensure that full use is made of modern management aids such as cost accounts and management statistics. It should satisfy itself that the resources of its hospitals are deployed in the most effective manner to meet changing conditions and should review the performance of the various hospital departments. In representing the consumer, it should satisfy itself that complaints about hospital services are handled satisfactorily. In order that a Committee may concentrate on matters of prime importance, it must delegate responsibility for other matters to its chief officers and in no way attempt to play an executive role.

4. The most recently offered advice upon the organisational relationships existing between Committees and Officers of Hospital Authorities is contained in HM(68)28. In this, the Minister strongly commended the observations of the Farquharson-Lang Committee on the separate but complementary functions of members and officers and said that 'Members are responsible for deciding policy, for reviewing and

modifying it as necessary, but its execution should be left to officers. Hospital authorities and their committees cannot effectively participate in day-to-day management of the service, which is the responsibility of its officers. It follows from this that the hospital authority must, in deciding, reviewing or modifying its policy, define its aims and decisions in such a way that officers can proceed to execute them confidently and without further reference to members except on major issues. Officers, in bringing proposals to Boards and Committees, must present them in a form which results in comprehensive decisions, rather than *ad hoc* decisions related to particular incidents. When particular incidents raise questions of policy on which a decision is needed from a Board or Committee, the policy issue should be presented in such a way that the decision can be applied by officers to other similar incidents which might arise later. The Farquharson-Lang Committee suggested that, within their general policy, the authorities must decide priorities and determine specific objectives in particular fields. Before they can reach conclusions on these objectives, however, their officers will have to provide the information on which such conclusions can be based. Thereafter, authorities should arrange for progress reports at reasonable intervals from their officers so that they can assess to what extent their objectives have been attained. This requires reappraisal of the functions of hospital authorities and their committees and reappraisal of the delegation of responsibilities to officers; definition of the functions of authorities or their committees is desirable rather than of the extent of officers powers.'

5. The advice given in HM(68)28 is in no way mandatory, but it serves to underline the primary functions of a Committee and its relationship with Chief Officers. However, it implies that responsibility for the co-ordination of medical and nursing activities shall be undertaken by the Chief Administrative Officer. This is not necessarily always practicable and various expedients, such as the appointment of an Executive Committee consisting of Chairman, key Board members, the Chairman of the Medical Executive Committee and Chief Officers, may be employed to brief the Management authority and so to ensure that on major issues the sectional interests are represented and can be resolved.

6. HM(68)28 also gives advice on the establishment

of Committees. The Farquharson-Lang Committee recommended that Scottish Boards of Management should have not more than three committees for (i) medical and allied services and patient care, coupled with major staffing questions; (ii) finance; (iii) buildings, services and equipment. For smaller groups and wholly psychiatric groups the Farquharson-Lang Committee suggested that two committees might suffice. The Minister commended the principle of fewer sub-committees and the allocation of sub-committee responsibility by functions, which accords with the views of the Salmon Committee, but he did not make precise recommendations to Hospital Management Committees and Boards of Governors on the number of sub-committees or their functions. Instead, he urged them to review their organisations to achieve the simplest possible committee structures, taking into account the general principles on the relative responsibilities of members and officers referred to in preceding paragraphs.

7. Reducing the number of standing sub-committees could create a tendency towards the setting up of more *ad hoc* committees to consider various aspects of hospital work and HM(68)28 suggests that Hospital Management Committees and Boards of Governors should consider carefully the need for *ad hoc* committees of members against the recommended greater devolution of authority to officers, and states that as far as is practicable detailed enquiries and investigations should be delegated to senior officers under the guidance of the appropriate standing sub-committee. If it should be deemed that any *ad hoc* committees of members are essential, they should from the outset be given specific terms of reference and asked to complete their task by a specific time.

8. The Farquharson-Lang Committee recommended the abolition of house committees in Scotland and in their place recommended organised visiting of hospitals by authority members. The Minister preferred to leave it to each Hospital Management Committee and Board of Governors to reach their own decision on whether house committees should continue where they exist, but he asked them to reconsider the value of such committees, with regard to the following principles. The advice given in 1949 that house committees should be given no executive functions still applies. There should be regular organised visiting of the hospitals by all members of the Hospital Management Committee or Board of Governors itself, and any visiting undertaken by house committees should supplement and not replace this. Attendance at house committee meetings by members of the Hospital Management Committee or Board of Governors should not involve excessive calls upon their time, and attendance at, and the servicing of, house committees should not make excessive calls upon the time of officers.

9. HM(68)67, which discussed the development of the organisation of hospital medical staff, refers to the 'Cogwheel' Report's recommendation that there should be a small executive committee, composed of representatives of the medical divisions. Where such an organisation is established the functions of their committee would be to receive divisional reports, to consider major medical policy and planning and co-ordinate hospital clinical activities. It would also act as the main source of medical advice to the hos-

pital authority with such relations with the group medical staff committee as may be locally determined. The Chairmen of divisions will need suitable supporting services. Since the executive committee would be the main source of medical advice, its chairman should attend meetings of the authority. Close liaison with the Chief Administrative Officer and the Chief Nursing Officer is also important.

Committee Structure

10. Whilst the Committee structure will necessarily vary according to the size, structure and peculiar needs of a hospital group, the effectiveness of the committee arrangements can be assessed by two considerations. First, how does the committee structure cover the various functions to be discharged by the authority and does the work of the Committee overlap? Second, is any committee dealing too much with detail, rather than policy formation, and assuming functions which ought to be discharged by its officers? The main functions of a hospital authority will include budgeting, financial control, staffing, medical planning and policy, standards of performance and effective deployment of resources, maintenance and supplies and planning for development. Some authorities will also have a responsibility for capital work. A committee structure must, therefore, be devised to ensure adequate cover of these main points.

11. Management Committees tend to discharge their functions through sub-committees formed in one of two ways; either territorially or functionally over the whole Group. The former method normally is affected through the use of house committees, which though possessing no executive powers, do form an additional deliberative link in the committee structure and can involve themselves in proposals which, if not in direct conflict with Group policy, may erode its formation. They may also complicate the processes of command of hospitals by the Chief Administrative Officer.

12. It is, of course, for the authority to determine what its committee structure should be, subject to the requirements of Regulation 3 of SI 1582/1969. However, a system of functional or specialist committees serving the Group as a whole, running parallel with and matching the administrative organisation permits delegation of powers in a systematic way. It enables members also to familiarise themselves more quickly with the considerations affecting their specific areas of responsibility. The comprehensive view of functions by these various committees should ensure that the needs of unit hospitals and departments will be judged in relation to one another so that the equitable treatment of each can be demonstrated. Peripheral hospitals will be aware that their requirements and standards are assessed in a consistent and uniform manner. Business is likely to be more efficiently discharged by an extended use of functional committees with delegation of defined powers. There may be, however, a danger of the setting up of too many Standing Committees or *ad hoc* committees. One form of committee structure which may assist the efficient discharge of the authority's functions would be a main General Purposes Committee with two smaller functional

committees, such as, for example, one dealing with Finance and Establishments and the other with Planning. Financial control, authorisation of expenditure and oversight of the authority's function as an employer would be looked after by the first of the smaller committees, while planning developments in group services and in the field of physical resources, together with reviews of progress, not only of developments but of the efficiency with which present business, both clinical and administrative, is conducted, would be the sphere of the second: each should be given defined limits of delegated authority and major matters would be referred, with recommendations where appropriate, to the General Purposes Committee.

13. Where Group functional committees, with delegated powers, are established, house committees may serve as identifiable links between the management body and the staff at the hospitals. Among the factors which have influenced decisions to set up or maintain house committees within a Group, is the need to further the welfare of the patient by maintaining links with Leagues of Friends, to maintain public relations within the community and to maintain contact between the management body and the staff. However, all these matters can be dealt with in other ways, by the hospital officers, by Group officers and by members, particularly when all hospitals are located within easy range of one another. Members, as well as Group officers, can continue to visit individual hospitals from time to time and can adopt a planned visiting policy with specific objects in mind related to the functional responsibilities of the Committee served by the visiting member. The object of such visits should be for members:

- (1) to acquaint themselves with the conditions under which the service is operating in all hospitals in the group and to establish and maintain contact between the governing body and the staff;
- (2) to obtain 'consumer' reaction by observation and consultation with on-the-spot officers; and
- (3) to ascertain the effect of Committee decisions and evaluate results.

Therefore, when a functional committee system is established, house committees can be discontinued. Links between unit hospitals and the managing body can be maintained not only by visiting, but by holding committee meetings in turn at different hospitals in the Group.

Servicing of Committees

14. To enable committees to be satisfied that their conclusions are soundly based, proposals submitted by officers should be presented in a form which enables comprehensive decisions to be made, giving recommendable courses of action, together with the likely outcome of this or that course, and the relevant balance of advantages.

15. There is a danger that too much information may be supplied to members of committees in the form of agenda, supporting papers, reports to committees on delegated functions and committee minutes. These should be condensed as far as practicable. Unnecessary items—such as routine reports of staff sickness, requisitions for routine

purchases within previously agreed policy limits—should be excluded. Authority to deal with minor matters can be delegated to officers, subject to report to committee from time to time. Other action is also possible, such as presenting digests of such documents as incoming letters. The complete document would, of course, be available at the meeting.

16. Recommendations made by subsidiary committees to principal committees should be by direct reference via the authority's Secretariat. Transmission of committee minutes in bulk from one committee to another is likely to be wasteful of committee members' and staff's time.

17. The principal officers including, where appropriate, the Chairman of the Medical Executive Committee and the Principal Nursing Officer, together should be responsible for the advice given to committees and the action to be taken on committee decisions. They should meet regularly with the Chief Administrative Officer as the officer responsible for overall co-ordination.

18. One of the problems of producing committee papers is the 'peaking' of typing loads, due to the desire of Chief Officers to present up-to-date and comprehensive reports. Committees should be prepared to accept preparatory or outline reports on matters of such urgency, on the understanding that supplementary reports, where necessary, are produced subsequently.

19. Draft minutes of committee meetings should normally be prepared within the ensuing 24 hours in order that, where appropriate, prompt executive action may be taken.

20. Standing Orders should, *inter alia*, define the roles, delegated functions and powers of committees and Chief Officers.

Group Administration

21. The consideration of Committee Organisation and Procedure would be incomplete without some reference to group administration and the functional relationships most likely to contribute to an effective organisation. A section on this subject will be included in future editions of this guide.

Selective Bibliography

22. The following publications contain information about Committee Organisation and Procedure:
- Hospital O & M Service Reports: London. HMSO
No 5 *The Filing of Management Papers. (Out of print.)*
- Abstracts of Efficiency Studies in the Hospital Service: London. HMSO
No 9 *Document Copying.*
No 67 *Committee Procedure-submission of House Committee recommendations.*
No 107 *Improvement of Services to Patients.*
- Report of the Central Health Services Council *The Internal Administration of Hospitals 1954.* HMSO.
HM(68)28 *Administration of Hospital Authorities.*
HM(68)67 *The First Report of the Joint Working Party on the Organisation of Medical Work in Hospitals.*

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Budgetary and General Financial Control

2

Scope

1. In O & M studies the term Financial Control is defined as being senior management's responsibility for budgetary and financial control throughout the group, and the range of functions for which the Treasurer is responsible both within and outside his department. The following considerations, which have emerged from a variety of studies, are used in management survey.

General Requirements and Operational Considerations

2. Adequate financial control in the National Health Service requires:

- (1) continuous review of all services to ensure they are carried out economically and efficiently and that the need continues for their provision at the level currently undertaken;
- (2) construction of annual budgets of expenditure consonant with Group policies for the continuous development of services, and revision of these budgets at the mid-point of each financial year;
- (3) control of expenditure to ensure that:
 - (i) declared aims and objectives of Group spending are attained;
 - (ii) value for money is obtained;
 - (iii) overspending of approved estimates does not occur;
 - (iv) waste is minimised;
- (4) control and review of income to ensure that all sums due to the authority are properly calculated and collected;
- (5) control of the accounting and financial systems including the use of an adequate system of internal check which will not only ensure that systems continue to be applied satisfactorily but also that changing needs will be identified so that any necessary action can be taken;
- (6) security of cash, stores, stamps and other items of value.

3. The Financial Regulations (SI 1969 No. 1582) require a hospital authority to appoint either a Finance Committee or Sub-Committee, the membership of which consist wholly of members of the appointing body. The Finance Committee should participate in the preparation of budgets in accordance with the declared aims of the authority and

maintain general oversight of the course of expenditure. Its functions include:

- (1) advising the hospital authority on the financial aspects of all matters within the scope of the functions of that authority;
- (2) ensuring that proper financial control is maintained in all matters for which the hospital authority are responsible;
- (3) issuing Standing Financial Instructions;
- (4) ensuring the proper maintenance of such financial records as the Secretary of State may specify;
- (5) submitting to the hospital authority financial estimates specified by that authority; or, as the case may be, by the Regional Hospital Board; or by the Secretary of State.

4. The Treasurer as the Chief Officer most intimately concerned with financial control attends Finance Committee meetings and should have the right to report independently to the Board or Management Committee itself. He works in close collaboration with the Chief Administrative Officer and other officers and with committees having a specific interest in the purchase, use and control of materials, equipment or services, and in the employment and deployment of hospital resources, eg. 'Cogwheel' type medical executive committees, or sub-committees set up to review purchases of medical and surgical equipment. He provides them with current information and advice, including information on the progress of expenditure and on current cost levels, to enable them the more effectively to control expenditure for which they are responsible. His efforts will be directed towards the maintenance of proper accounting records, the prompt settlement of accounts and collection of income, and the proper custody of cash and stores, throughout all hospitals in the group.

5. Effective budgetary control is a joint exercise in which all officers have parts to play. It calls for a degree of co-ordination and co-operation which is not achieved automatically but requires a conscious effort by all those concerned.

6. Relevant information and prompt action are prerequisites of any sound system of budgetary control. A reliable accounting and costing system is essential and this must provide a concise, up-to-date and complete picture of the financial position as well

as indicating effective signposts to action. Probably the most important requirement is the possession of up-to-date financial information. For example, the aim should be that the Finance Committee should have before it a statement showing the financial position at the latest not more than three weeks prior to the date of the meeting. The primary responsibility for keeping annual expenditure within agreed estimates should, so far as possible, rest with those responsible for the activities which give rise to the expenditure. Up-to-date financial information including commitments, helps them to maintain budgetary control. Such information should be in easily digestible form confined perhaps to items of exceptional significance and indications of trends since the presentation of too great a mass of information and too great an analysis of expenditure under sub-headings may prevent essential facts being identified.

7. The manner in which hospital costing should be carried out is described in the Hospital Costing Information Notes. The main purposes of costing are to indicate trends in the cost of performing work, to enable inter-hospital, regional and national comparisons to take place and to suggest where investigations need to be made. In addition to the annual cost statements, the production of interim statements (covering the most important cost factors) is important if management is to do this. A report should accompany each annual and interim cost statement providing comment about any costs which vary significantly from those expected or from National and Regional averages. In addition, up-to-date information should be included about costs which have been commented upon in previous reports. Costing information, however, does not of itself provide a measure of quality of service or performance, nor does it take account of a wide range of varying local circumstances. Statistical and other systems which supplement the use of costing information by concentrating attention on the extent to which current activities achieve acceptable standards of performance within agreed cost limits will generally be necessary.

Budgetary and General Financial Control

8. HM(69)93 sets out the following pattern of requirements considered desirable to achieve an adequate system of Financial Control over expenditure and release of cash:

- (1) the preparation and approval by the authority of all revenue estimates and revised estimates in detail (for example, on the lines shown in Table B of the Annual Financial Statements) for each hospital under the control of the authority or each main activity carried out by the authority for the Group as a whole; or in the case of a Regional Hospital Board, on the lines of Tables A and C;
- (2) the presentation to the authority as soon as practicable after the end of each calendar month, of a statement comparing cumulative revenue expenditure to date with the appropriate proportion of these estimates in such form as will enable the authority to consider significant variations;
- (3) the examination by the authority of any significant variations between expenditure shown

under paragraph 10(3) below and the appropriate proportion of the estimates, and the recording of their decisions as to any necessary corrective action in the Minutes;

(4) the preparation and approval by the authority of all capital estimates and revised estimates showing approved expenditure for each scheme;

(5) the inclusion in the authority's Standing Financial Instructions for the guidance of officers of a clause to the effect that no expenditure may be incurred which has not previously been provided for (but not necessarily particularised) in approved estimates, other than with the specific prior approval of the authority or its Finance Committee (or Sub-Committee). Expenditure on items of equipment or individual schemes of maintenance costing more than £1,000 in the case of Regional Hospital Boards or Boards of Governors, or £250 in the case of Hospital Management Committees, should be particularised in the estimates or should be subject to the separate approval of the authority;

(6) the presentation to the authority of monthly lists of all accounts paid, in such form as will enable members to call for explanation of any item;

(7) the maintenance of safe and secure arrangements for the issue of moneys payable, including an effective system of internal check of accounts before payment is made;

(8) the maintenance of a main account for the receipt of all income and advances, the main account to be used only for the funding of subsidiary accounts on an imprest basis on the signatures of two persons, one of whom should be the Treasurer or his authorised deputy, and the other drawn from such members or officers as the authority may decide.

9. The construction of budgets should be undertaken by the Treasurer in collaboration with other Chief Officers and the Finance Committee, who must collectively be responsible to the Authority for the broad deployment of resources and the effective control of expenditure. The pattern of the budget established by its chief officers must be agreed by the Authority as fully reflecting its current policy and plans for the development for the group as a whole and not merely representing the sum of its various parts. It is necessary also to ensure that budgets are true forecasts of expenditure and not merely a revision of the previous year's estimates which may not fully reflect later events.

Control of Expenditure

10. In reviewing expenditure for the purposes of budgetary control it is necessary to have regard not only to the true expenditure to date but also to commitments and other foreseeable expenditure provided for in the estimates but as yet uncommitted.

A Finance Sub-Committee needs to know:

- (1) the budget for the year;
- (2) the appropriate proportion of the annual budget to date;
- (3) expenditure to date comprising
 - (a) salaries and wages and the value of goods and services received, other than for stock, for which payment has been made, plus
 - (b) the estimated cost of goods and services

received, other than for stock, for which payment has not yet been made;

(c) the estimated value of goods issued from stock;

(4) the estimated value of unfulfilled orders placed which are expected to be met within the financial year;

(5) 'non-recurrent' expenditure provided for in estimates but not appropriate to be apportioned as in (2) and not yet committed.

From this information it may be judged how expenditure (3) compares with estimates (2) and, equally important, how expenditure to date together with foreseeable commitments (4) and (5) is likely to compare with the provision made for the year (1). The opportunity should be taken to emphasise significant departures from anticipated expenditure and indications of trends should be given.

11. Expenditure statements for individual departments should be produced at intervals (monthly, where appropriate) to enable departments' managers to exercise financial control and to take sensible decisions affecting current and future policy.

12. Whilst much expenditure is of a routine nature and is incurred by departmental officers under delegated authority within approved allotted budgets, purchases over a certain sum named by the authority, or of a non-routine nature, should only be authorisable by specified senior officers or by committee or sub-committee, as appropriate. All developments of a recurring nature should only be approved by a sub-committee having details of the costs occurring in the first part-year and a full year.

13. All officers with financial responsibilities for example, Hospital Secretaries, Purchasing Officers, Stores Officers, should be advised of the timetable, in simple diary form, to which the Treasurer's Department has to work, so that they will be better able to assist in the prompt provision of expenditure information. They should be made fully aware of the part they play in the control of expenditure.

Control of Income

14. The collection of income is an important responsibility of Hospital Treasurers. It is important to have a control procedure to ensure that all unpaid debtors' accounts are identified and that any necessary follow-up action is taken. The procedure will normally involve a reconciliation between the Sundry Debtors Control Account and the individual debtor's accounts and should be prepared independently of the officers responsible for collecting remittances. In addition to the accountancy requirements, there is also a need to review charges from time to time to ensure that they are still appropriate. Whilst some charges are regularly reviewed by other organisations or are linked to other factors, eg. Private Patient and Road Traffic Act charges, there are still a number which depend upon local initiative. Some of the more important of these are:

- (1) rents and rates of hospital properties;
- (2) charges for services (except where collected by pre-payment meter) eg. electricity, gas etc;
- (3) meals and refreshments;
- (4) rent of hospital lands;
- (5) prices for sales and transfers in trading services.

The system of Internal Financial Control should be so devised that changes in the various factors which should affect these charges, eg. Local Authority rent increases, increased cost of providing services, are identified and the necessary action taken. The maintenance and regular review of a document which records the levels of various forms of income is one of the easiest and most effective ways of spotting promptly the failure to collect or to account for collections.

Other aspects

15. A prime objective of Financial Control is to ensure that value is obtained for expenditure incurred. Information from the Hospital Costing Returns and other sources may provide useful signposts upon costs and performances, including the main elements of staffing and pay, services, materials and equipment, but other factors, eg. standard and scope of the services provided, also need to be taken into account. This aspect of financial control featuring some of the areas of financial responsibility has been the subject of audit reports viz:

- (1) *Staff*
 - apparently low productivity in an X-ray Department
 - apparently high level of staffing in a Pathology Department.
 - boiler house staff numbers remaining unchanged although automatic stoking had been installed;
- (2) *Services, etc.*
 - low occupation of staff residences
 - spare capacity in hospital laundries
 - failure to review staff rents and meal charges
 - failure to revise out-of-date contracts for swill sales
 - failure to review gas and electricity tariffs to ensure that the best terms are being obtained;
- (3) *Materials*
 - failure to invite competitive tenders for supplies
 - significantly higher than average drug consumption
 - lack of control of the use of paper hand towels
 - excessive food waste.

The system of Internal Financial Control adopted by the authority should ensure that the necessary controls exist to prevent such defects being overlooked.

16. In addition, a system of Internal Financial Control will embody (a) internal audit, and (b) methods of internal check, both of which will be under the direction and control of the Treasurer. The programmes of internal audit, reports on findings and corrective measures taken as a consequence of reports received will also be the concern of the hospital authority. Internal check systems will be designed (a) to eliminate as far as practicable the opportunity for fraud, i.e. by the separation of

duties of handling cash, stores, etc, from those of compiling prime records or control records, (b) to create automatic means whereby vital errors and omissions which have occurred in another part or parts of the accounting system are revealed. Thus a satisfactory system of internal check can reduce the burden of internal auditing otherwise required.

Functions of the Treasurer

17. The duties of the Treasurer will normally include:

- (1) giving advice to the Hospital Authority and its senior officers on its financial operations;
- (2) in conjunction with the Chief Administrative Officer and other chief officers, considering the revenue estimates of unit hospitals and departments, the preparation of budgetary information and annual financial estimates for approval, and making appropriate detailed budgetary allocations to hospitals and departments in accordance with the Authority's decisions on priorities;
- (3) the prompt settlement of all debts, including the payment of salaries and wages, ensuring the prompt collection of income due, and its payment into bank;
- (4) the maintenance of the necessary financial records and books of account for both statutory funds and moneys held in trust by the Authority;
- (5) ensuring that stores records, inventories (where appropriate) and, for example, such other records as the Losses and Compensation Register are properly maintained;
- (6) compiling regular statements relating expenditure to date with the approved estimates in order to provide evidence of budgetary control, and to draw attention to the need to initiate any changes which may be called for;
- (7) extracting such other information of a financial nature, including costs, so as to assist (a) in

ensuring that declared aims and objectives of Group spending are attained, (b) in comparing the relative expenditure of the various departments, year by year, or at shorter intervals as may be appropriate, (c) in gauging their efficiency, (d) in deciding on the manner in which future developments may best be planned, and (e) in ensuring that the best value is obtained for money;

(8) providing and maintaining adequate measures for financial control and for the security of the Authority's funds, including the direction and control of internal audit;

(9) assisting the hospital authority and heads of departments in the compilation and maintenance of necessary accounting statements and in advising them in regard to methods of controlling the progress of expenditure and the use of management accounting information generally.

Selective Bibliography

18. The following documents contain information about Budgetary and General Financial Control: Abstracts of Efficiency Studies in the Hospital Service: London. HMSO.

No 15 *Analysis of Expenditure - suppliers' invoices.*

No 116 *Control of Low Cost Stores Items.*

HM(54)45 *Losses of Equipment, Cash and Stores.*

HM(56)85 *Internal Financial Control and Irregularities involving the risk of loss to the Exchequer.*

HM(61)78 *Control of Cost of Drugs and Dressings.*

HM(62) 2 *Custody of Unofficial Funds and Patients' Monies.*

HM(63)52 *Control of Hospital Linen.*

HM(65)67 *Standing Orders.*

HM(65)90 *Hospital Costing.*

HM(69)93 *SI 1582 of 1969 Hospital Accounts and Financial Provisions.*

Establishment Work including Personnel Management

3

Scope

1. This section provides guidance about Establishment Work at a hospital or group of hospitals. For this purpose, the term includes staff management and control, recruitment, career development and training, some aspects of accommodation, safety, health and welfare of the staff and joint consultation and communication.

Basic Considerations

2. The work of the Establishment Section is concerned with the effective provision and deployment of manpower resources to meet the needs of hospitals and the staff who work in them. In some circumstances, there are advantages in organising Establishment Work on a group basis, (these would include flexibility in the use of staff) but in other circumstances, organisation on the basis of the individual hospital may be the solution. The Establishment Section is responsible for the recruitment of appropriate personnel, for ensuring that they are trained effectively for their jobs, and for planning careers.

3. The conventional role of the establishment office outside the Hospital Service is associated with the recruitment, advancement and well-being of staff. Within the Hospital Service however, whilst acceptance of responsibility for these functions is readily acknowledged, the need for the creation of a specific 'personnel officer' post is not yet universally admitted.

4. Effective staff management and control requires the introduction of simple methods of staff control, not only to assess requests for additional staff but also to recognise any reduction in staffing requirements. Job descriptions provide guide lines to staff and management of their responsibilities and are invaluable in the correct assignment of tasks to appropriate grades and disciplines of staff. Full use should be made of available statistics and Work Study and O & M recommendations. The Establishment Section should provide up-to-date manpower information on:

- (1) staffing structure (organisation charts);
- (2) who the staff are (organisation charts);
- (3) what they are doing (job description);
- (4) the number of staff required (manpower needs and requests);

(5) the number of staff in post (manpower returns);

(6) how long they are committed to the programme of work (programme);

(7) members of staff, including summaries of staff, age, qualifications, previous experience etc, as appropriate, for each department.

5. The responsibility for taking action or making decisions governing staffing matters should be clearly defined and understood, particularly for matters concerning:

(1) the approval or rejection of a project or programme of work;

(2) the financial or staffing limits imposed on specific departments;

(3) the limitations of delegated authority to individual officers (eg. rights to 'hire and fire').

6. Recruitment to the more senior posts is usually as a result of public advertisement where the aim is to induce a sufficient number of properly qualified and experienced people to apply so that a selection can be made from a wide selection of candidates.

7. Features of good staff recruitment practice include:

(1) centralised control for editing, placement and timing of advertisements;

(2) a method of notifying existing staff of vacancies, preferably before their appearance in the press;

(3) a means of assessing whether value for money is being obtained whichever of the various methods of recruitment is used. Comparison should be made of the cost/success ratio of advertisements in different publications and also with the cost of other forms of recruitment eg. use of agencies;

(4) flexibility of arrangements to respond at short notice to urgent needs or to resolve staffing problems arising from such matters as the discharge or re-assimilation of local redundancies;

(5) evidence of advance planning (visits to schools and colleges for end of term leavers) prepared talks, film strips, other illustrative material, adequate liaison with Employment Bureaux, agencies etc.

8. It should be the continuous aim of management to improve the standard of the staff in carrying out their tasks and to develop their skills to meet the challenges that promotion would bring. Adequate

training facilities are essential and should be organised as appropriate.

9. Each Group should have a post with general responsibilities for training which in smaller establishments is likely to be combined with other establishment and personnel duties. Job rotation will in many cases, provide a broad base of experience for staff to build upon. Where appropriate planned movement will ensure the steady accumulation of experience both in the interest of the individual and of the hospital service overall. Annual reports of performance should supplement this to assist management in planning the careers of staff and to help staff to achieve their potential.

10. The officer undertaking the role of Establishment or Personnel Officer may already undertake the role of 'Welfare Officer' for the staff. The report on 'The Care of the Health of Hospital Service Staff' made firm recommendations on the setting up of a 'Hospital Occupational Health Service' - (HM(68)49). In this and in previous HM's guidance has been afforded on important aspects of this work including:

- (1) pre-employment medical examinations - HMC(48)79; HM(65)57;
- (2) other routine medical examinations;
- (3) examination and resettlement of staff after sick absence;
- (4) maintenance of staff immunisation records;
- (5) maintenance of staff health records;
- (6) reporting of accidents in hospitals - HM(55)66;
- (7) health and food hygiene - HM(62)42; HM(64)34;
- (8) staff counselling and personal problems.

In any case, responsibility for these aspects of staff welfare work should be allocated specifically and this information should be known to all members of management and staff.

11. It is a function of local management 'to secure the greatest possible measure of co-operation between the Authorities responsible for the nation's health and the general body of persons engaged in the health services, with a view to increased efficiency in the public service and the well-being of those engaged in the services'. Only if the spirit of co-operation is evident at all levels between management

and staff will this be successfully achieved. A high standard of communication between departments as well as within them is a key factor to its attainment. Staff representatives should be kept fully informed of matters likely to affect working arrangements or staff numbers.

12. The successful introduction and maintenance of pay/productivity schemes is dependent to a large measure on good relations and good communications; appropriate action should be taken to enlist the full co-operation of the staff concerned and to explain at an early stage what is being done, how it is to be done, and when it is to be done.

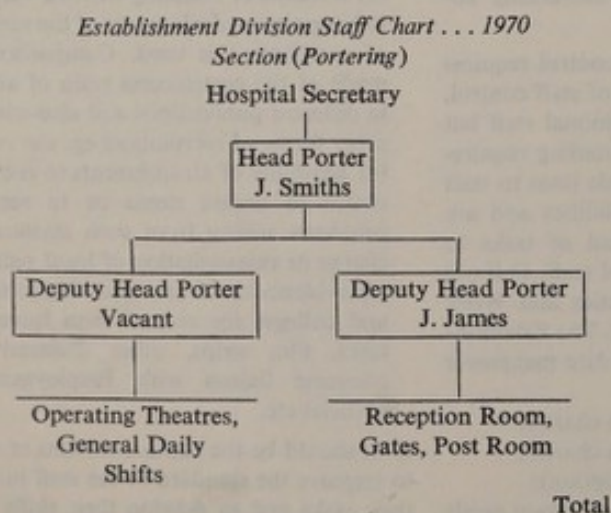
13. The Personnel Officer is likely to be concerned with the publication of news letters or house journals, which *inter alia* may include details of the achievements of joint working parties or sub-committees associated with new developments and the results of suggestion schemes. He may also be responsible for the organisation of informal meetings between management and staff.

General

14. In order to assist management, the Establishment Section should provide detailed information on manpower staffing and deployment throughout the hospital in a simple and concise form. This is often best done by the use of vertical organisation charts linked to a 'tabloid' of the staffing position and complement. An abridged example of such a chart is given below:

Such charts should be simple, dated and titled and reviewed at regular intervals; (at a revision stage, some reprinting and editing time may be saved by the use of translucent overlays). The posts outlined on the charts can be cross-referenced to job description cards giving details of the duties, location and the qualities, qualifications and experience needed for the job.

15. In addition to providing passive information of the nature contained in an organisation chart, the Establishment Section must also exercise positive measures to ensure effective control of staffing and its deployment. Arrangements should be made for



Approved Posts	In Post
1	1
2	1
3	2

regular manpower reviews to take place to assess the staffing needs measured against the standards of output for the work carried out in the various hospital departments.

16. The Personnel Officer should keep group, hospital and departmental management aware at suitable intervals of the staffing position overall taking into account age, resignations, forthcoming retirements and difficulties in recruitment. Management can then take informed decisions on whether to redeploy staff, limit the work, or to make special recruitment arrangements. Keeping this information up-to-date will involve some clerical effort but the rewards are likely to be worthwhile and should result in a better manpower utilisation and the removal of such difficulties as the threat of breakdown in hospital departments and wards caused by foreseeable staff vacancies. In addition, control information should be provided for the Group, in comparative and summary form illustrating for example:

- (1) wastage of staff and reasons (ie. resignation, retirement, transfer);
- (2) number of staff recruited against the number of vacancies;
- (3) expenditure on advertising and recruiting media and the extent of its success;
- (4) cost of recruitment per head of staff.

17. The closest possible liaison should be maintained with the Treasurer's Department in all matters affecting staff salaries and wages, superannuation, income-tax, national insurance and related subjects. In particular, they should be given the earliest possible notice of impending staff appointments, resignations, promotions and transfers.

18. Recruitment should be organised centrally by the Group thus enabling:

- (1) the content and style of advertisements to be attractive and of a consistently good standard; they should be kept as simple as possible and contain only the essential details of the post;
- (2) the cost of the various types of presentation (eg. Display, Semi-Display, Lineage) to be related to the importance of the vacant post or the urgency with which it should be filled;
- (3) more accurate budgeting for advertising based on an analysis of success and media used;
- (4) greater economy through adoption of 'Block' advertising (see 19(2) below).

19. Useful means of improving advertising methods and reducing the preparation time might include:

- (1) maintaining a scrapbook illustrating in date order examples of the hospital authority's printed advertisements filed by grade with selected examples of competitors' advertisements. These may generate ideas to improve appearance and cut costs;
- (2) adopting a technique of combining several different advertisements for staff under the one title heading with a single common address and using a reference code to identify the individual posts;
- (3) using pre-printed leaflets for fuller details of the hospital, the job and conditions of service thus limiting the advertisement to essential details, highlighting information that is likely to be attractive.

20. Selection interviews should be held as close as possible to the time specified in the candidate's letter of invitation. Selection procedures may include:

- (1) standard arrangements for the selection of interview board members and candidates;
- (2) the provision of a programme for candidates showing the venue, board membership and interview times;
- (3) the circulation of guidance notes for new interview board members on procedure, conduct, assessment;
- (4) necessary information about the job and associated factors, such as current manpower policy, the ages and other relevant facts about staff holding positions immediately senior to the post being filled, training, opportunities etc;
- (5) the circulation of briefing papers on candidates in adequate time so that the interview board members may prepare relevant questions.

21. Short induction courses are generally worthwhile for newcomers. The following topics of general interest may be considered for inclusion in the course curriculum:

- (1) information about the hospital; history, staffing, layout (including an abbreviated tour of the various hospital departments);
- (2) facilities for staff (residential, car parking, recreation, dining, clubs);
- (3) hospital rules and regulations, conduct and discipline, welfare arrangements;
- (4) fire and accident drill and safety;
- (5) joint consultation facilities, suggestion schemes;
- (6) introduction to Whitley Councils functions and practices;
- (7) arrangements for pay incentive schemes.

Some of this information may also be included in an information leaflet for distribution to all newly recruited staff.

22. Advice upon in-service training of staff is available for certain categories of staff eg. Head Porters HM(68)96, Domestic Staff HM(69)49, Cooks HM(69)51. However, guidance on the setting up of appropriate courses can normally be obtained from the Regional Training Officer.

23. The risk of accidents to staff can be successfully reduced by a systematic campaign to make management and staff aware of the hazards. Periodic inspections of working methods and arrangements, and equipment should be undertaken. Safety awards and the use of posters can be effective means of generating interest in this subject. The nomination of a Safety Officer should be considered.

24. The risks of fire can be reduced by:

- (1) regular inspection of fire fighting equipment;
- (2) the regular practice of fire drill at varying times of day;
- (3) the provision of up to date instruction on the handling of fire fighting equipment.
- (4) achieving a high level of liaison with the local fire brigade.

The nomination of a Fire Prevention Officer should be considered. Guidance on general fire precautions in hospitals is given in Hospital Technical Memorandum No 16.

Staff

25. The functions of the Personnel Officer may be summarised as follows:

- (1) staff management and establishment control, including the provision of information to departmental managers about existing staff numbers and known changes, and making arrangements for regular manpower reviews to be carried out;
- (2) provision of all necessary information to the Treasurer's Department for salaries and wages and associated purposes;
- (3) editing, placement, and timing of advertisements, and making arrangements for staff interviewing;
- (4) arrangements for induction and any subsequent training of staff in conjunction with any nominated group training officer, or other training institutions, as appropriate;
- (5) career planning for staff, in conjunction with the Regional Training Officer, where necessary;
- (6) staff welfare matters including arrangements for medical examinations, the maintenance of staff health records, staff counselling and promotion of social events;
- (7) fostering good staff relations, including the publication of news letters or house journals etc;
- (8) ensuring that relevant information is communicated to staff before, during and after the introduction of incentive payment schemes, and where necessary, acting as industrial relations officer.

Selective Bibliography

26. The following documents contain background information about Establishment and Personnel work:

- Hospital Technical Memoranda: London. HMSO
No 16 *Fire Precautions*.
- HM(59)61 (as amended by HM(62)28) *Control of Hospital Service Establishments*.
- HM(65)62 *National Staff Committee reports: Recruitment to the Clerical Grade. Planned Movement. Staff Reports*.
- HM(68)96 *Training of Ancillary Staff - advocating a group officer with general responsibilities for Ancillary Staff Training*.
- HM(69)3 *Staff Records for Administrative Staff in the Hospital Service*.
- HM(69)56 *Procedures for the Appointment of Administrative staff in the Hospital Service*.
- HM(69)76 *Report of the National Staff Committee*.
- HM(69)88 *Model Forms of Contracts for Hospital Medical and Dental Staff*.
- HM(70)23 *Library Services in Hospitals*.
- HM(70)26 *Staff Contracts of Employment Act 1963. The Care of the Health of Hospital Staff, Central and Scottish Health Services Councils Report (HM(68)49). HMSO.*
- Report of the Committee of Inquiry into the Recruitment, Training and Promotion of Administrative and Clerical Staff in the Hospital Service, (The Lycett Green Report). HMSO.*
- The Pay and Conditions of Manual Workers in Local Authorities, the National Health Service, Gas and Water Supply, NPBI report No 29. HMSO.*

Gardens and Hospital Grounds

4

Scope

1. This section provides guidance about the organisation of the work of maintaining gardens and grounds in a hospital or a group of hospitals. It is not intended to provide information about any Farming or extensive Market Gardening activities which take place. Memorandum Trading Accounts will almost certainly be prepared for these activities and these accounts will provide a suitable guide to their efficiency.

General Considerations

2. The layout of hospital grounds should be designed to provide good visual amenities for patients, staff and visitors and to minimise maintenance costs. Some of the characteristics of the type of layout and methods which should normally be found are:

- (1) a high proportion of close mown or rough grass;
- (2) the restriction of flower beds to sites where they have an amenity value. Perennials should be used extensively;
- (3) the use of shrubberies for display and screening with ground covering perennials to reduce weeding;
- (4) the avoidance of irregularly shaped lawns which tend to increase mowing effort;
- (5) hedging restricted to what is really necessary for screening or privacy;
- (6) the use of bulbs and perennial plants for display and flower cutting;
- (7) little or no glasshouse propagation of plants.

3. Where possible, the grass cutting and other services should be organised on sub-group or inter group basis.

4. If the cost of maintaining grounds per acre is limited to that specified in paragraph 6, there will be no advantage in arranging for the maintenance work to be carried out by outside contractors.

5. The maintenance of grounds and gardens for part, or for the whole of the group, by a team of gardeners is likely to be an economical way of providing the service. Abstract of Efficiency Studies No 125 describes how a team service for a number of hospitals was extended to the rest of the hospitals in the group.

Working Methods

6. The annual cost of maintaining gardens and grounds should not significantly exceed £300 per acre, including the area occupied by buildings. This sum is related to an acreage of 10. If the area is greater than this, the cost per acre should not exceed £270. This cost includes only normal maintenance costs, the greater proportion of which are the wages of gardening staff. It does not include the initial purchase of equipment.

(Note: These cost indices were appropriate in November 1969. They will need to be adjusted for any general increase in ASC wages, ie. one not related to increased productivity, which takes place.)

7. Agreed standards of maintenance should exist and should apply to all hospitals. The standards should take into account both the aesthetic value and the cost of maintenance. If standards are not set, extra costs may be incurred in cultivating to a higher standard, or the appearance of the gardens and grounds may fall below that required.

8. A periodical review of the policy adopted for the maintenance of gardens and grounds should take place. The cost of the present policy should be compared with alternatives which should include the leasing or sale of any land not required by the hospital. There is a danger that the appearance of land which is leased, may fall below the standard required by the hospital. If the location of the land is such that its appearance is important, assurances should be obtained that it will be maintained to an agreed standard.

9. Organisation of grass cutting services on a group or sub-group basis, or even on an inter group basis where this is feasible, will provide a more economical service, particularly in the use of equipment. A gang mower, tractor and mowers of, say, 36in, 28in and 14in, will generally be needed, supplemented by hand mowers and by a motor scythe.

10. The shape of lawns can make a considerable difference to the time needed to maintain them. Shapes containing gentle sweeping curves or straight lines have been found to be economical of maintenance. They should be capable of being cut by gang mowers. Rectangularly shaped lawns usually involve turning the mowing machine through a full half circle at the end of the lawn. Since the larger motor mowers weigh between 5½ and 6 cwt, con-

siderable physical exertion is necessary by the operator turning these through 180°. Several methods of restricting the turns to about 90° are possible, although the simplified cutting will inevitably dispense with the light and dark stripe effect.

11. Where residential or hospital departmental accommodation is provided in adjacent houses, garden maintenance costs can be reduced if the gardens are combined and simplified open planning adopted. Many small pieces of land which need to be maintained individually can increase costs substantially.

12. Where it is not possible to use grass collection boxes, eg. when grass gang mowers are used, grass cuttings should be allowed to lie when conditions are suitable in order to save gathering and removing them from the lawn. Suitable cuttings may be used to mulch adjoining shrubberies. If it is necessary to carry them away, suitable equipment should be provided.

13. The placing of signposts or poles in lawns can substantially increase the amount of work involved in mowing a lawn. It is preferable not to have signposts in lawns but if they must be located there, they should be so placed not to increase significantly the amount of work. This may be done by placing them in a flower bed or on a paved area or by making them removable.

14. Worn 'paths' over lawns may indicate the need for normal paths. When new paths are being laid, the level of the lawn should be about 1in-2in above the level of the path to simplify lawn edge trimming work. Where paths already exist and are at the same level as the lawn, edging work will be simplified if a 6in channel is dug between the lawn and the path. If the channel is filled with gravel, it can be treated annually with a weed and grass killer.

15. Cultivation of annual plants is expensive and their substitution by perennials, shrubs and roses is a much less expensive way of providing a colourful display. Flower beds should have the following characteristics to avoid spending excessive amounts of staff time on their maintenance. They should:

- (1) have a real amenity value for patients and staff;
- (2) not be over ornate nor have a shape which makes the maintenance of such an area unnecessarily complicated and difficult, particularly for the cutting of grass;
- (3) contain perennials, roses and flowering shrubs to minimise maintenance costs. Roses normally last for at least 10 years and the average annual cost of replacing them is considerably less than the cost of purchasing or propagating annual or bedding plants. The labour of attending to roses and perennials (including manuring, separating, pruning, etc) is also less than that involved in attending to annual or bedding plants;
- (4) be of reasonable size. Small flower beds can significantly increase the amount of work in mowing lawns. If a number of beds are reasonably close together, they should be combined to form a larger bed, preferably with gentle sweeping curves or straight edges. If access is required for weeding, strategically placed paving slabs are to be preferred to narrow grass paths.

16. Shrubberies not only act as screens but also provide an interesting and colourful display of blooms and foliage. They are not expensive to maintain. There should be a plan for pruning and arrangements should exist to ensure that it is implemented. The amount of weeding in shrubberies can be kept to a minimum by interspersing ground-covering perennial plants.

17. Glasshouse propagation of plants can be costly and where this takes place in heated houses, is generally uneconomic. There is a danger that production may become related, not to the needs of the hospital but to a desire to fill all the available space. Alternative plants, such as pots of bulbs, spring bulbs and perennials and annuals which can be propagated in cold frames, may be worth considering.

18. Hedges are costly to maintain. They should only be used where privacy or screening is required and should be no higher or wider than is absolutely necessary.

Staff

19. It may be possible at peak times to supplement a lower number of staff by engaging temporary gardeners or gardening contractors rather than to employ the larger number of staff required to meet peak demands. At small hospitals employing one full-time or part-time gardener, it may be possible to provide assistance from a larger hospital.

20. The overall management ratio for gardens and hospital grounds is as stated in paragraph 6. The number of staff required for the various categories of gardening work, such as grassland maintenance, care of flower beds, glasshouse work, care of roadways, hedges and shrubberies, etc have been calculated and after further testing will be published.

Equipment

21. Attachments can be obtained for several machines, motor scythes in particular, which can enable them to pull small platform trucks, clear snow, power hedge trimmers, or provide compressed air for weed control spraying. It is important, therefore, to consider these attachments when decisions about the purchase of machines are being made.

22. Where there are large areas of lawn and many trees, a leaf collection machine will generally repay its purchase price within 12 months.

23. The National Agricultural Advisory Service has recommended the sizes of machines shown in the Table on page 15.

24. A light tractor petrol engine should give a performance when using a triple gang mower of 11 miles per gallon. There are two types of hitch; the hook-hitch and the lift-hitch. It is worth paying extra for the lift-hitch attachment as this enables the driver to lift the cutting gear clear of the ground when he has to cross roads or move to another site. The driver can do this without leaving the driving seat. Hook-hitched gear has to be unhitched and

14in Motor Mower:	suitable for	$\frac{1}{4}$ / $\frac{1}{2}$	acre of grass	
16in	" "	" "	$\frac{1}{1}$	" " "
20in	" "	" "	$1\frac{1}{4}$	" " "
24in	" "	" "	$1\frac{1}{2}$	" " "
30in	" "	" "	$2\frac{1}{3}$	" " "
36in	" "	" "	$3\frac{1}{4}$	" " "
40in	" "	" "	$4\frac{1}{5}$	" " "
42in	" "	" "	$5\frac{1}{6}$	" " "
Junior gang mower:	" "	$5\frac{1}{15}$	" " "	} (approximately)
Triple	" "	up to 30	" " "	
Quintuple	" "	50	" " "	
Septuple	" "	80	" " "	

Note: A triple gang mower comprised of 3 x 30in cutters will cut 7ft but, because of overlap on runs, the effective cut is usually taken as 6ft. A small 3 x 20in unit is usually taken as cutting 4ft 6in.

loaded on (or in) a trailer, which then has to be hitched-up, when moving from site to site.

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO
 No 8 Maintenance of Grounds and Gardens.
 No 125 Maintenance of Grounds and Gardens.

Selective Bibliography

25. The following documents contain information about Gardens and Hospital Grounds:

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Engineering and Building Maintenance Services

5

Scope

1. This section provides information about the organisation of Engineering and Building Maintenance Services in a hospital or a group of hospitals.

General Considerations

2. The management of an Engineering and Building Maintenance Service calls both for a general control of resources and for the detailed control and supervision of a wide variety of individual jobs of varying sizes, often spread over a wide geographical area. Engineers and Building Supervisors cannot personally perform both functions effectively, except in small compact groups, and some delegation of responsibility will normally be necessary.

3. It has not usually been found to be a successful arrangement to appoint a technical officer to be in charge, as works superintendent, of two other officers responsible for engineering and building work respectively. It is rarely possible to find an officer who has adequate knowledge of both branches of work and it is normally better for the necessary co-ordination to be by the group administration. In most hospitals, maintenance work is carried out both by direct labour and under contract. Consideration must be given to achieving the most efficient division of work between the two. The main factors which should be taken into account are described in paragraphs 41 to 53 of Hospital Technical Memorandum No 12.

4. To provide effective control over the economic use of direct labour and to reduce delay in meeting demands, it is desirable to:

- (1) work to an agreed programme, covering major and other specific maintenance tasks and minor capital works;
- (2) decide upon a schedule of priorities covering all tasks included in the programme;
- (3) evolve planned time schedules for the different trades, based on the estimated time required for the tasks included in the programme;
- (4) keep job costing records, for the purposes of financial control, and as an aid in estimating the cost of future similar work.

5. The detailed programmes of direct labour work should be designed to produce an even flow of work for all directly employed staff throughout the year.

Contract work should be integrated to ensure that the correct sequence of jobs is followed. The annual programmes will need to be translated into monthly programmes, showing how the work is to be allocated to the different trades.

6. Studies have suggested that some maintenance tradesmen are less than 50 per cent effective mainly because:

- (1) a proportion of the work allocated to them is of doubtful value;
- (2) an unduly large proportion of their time is spent in unnecessary travelling or waiting for instructions or materials;
- (3) adequate tools and equipment are not available;
- (4) insufficient provision is made to provide alternative indoor work, should weather conditions interfere with outdoor work;
- (5) they are otherwise under-employed.

7. As the efficiency of an organisation is dependent mainly on the planning of work, pre-job control of workmen and supervision, the control system should be simple, easily understood by workmen and require little clerical effort on their part. The operation of the system adopted should leave supervisory staff adequate freedom to make preparations for future work to be done and to undertake some direct supervision of work in progress.

8. Effective day-to-day management by the Group Engineer and the Building Supervisor and the supervising staff is essential to achieve the efficient use of resources. The importance of management training at the appropriate level for all supervisory and controlling staff cannot be over-emphasised.

9. Committees should always be provided with estimates of the cost of substantial jobs and be informed of the actual cost on completion. Reasons should be given when under and overspending occurs.

10. The supervision of contractors' workmen is the responsibility of the contractors concerned. The responsibility, however, for ensuring that the drawings and specifications are observed by contractors rests with the Group Engineer or the Building Supervisor. Frequent and detailed inspections of work carried out by contractors should be made.

11. The need for late variations to specifications which often cause contract prices to be exceeded,

can be avoided by full and careful consultation with all parties in preparing drawings and specifications.

12. An efficient Engineering and Building maintenance service cannot be provided by an Engineer or Building Supervisor working in isolation. It requires the full support of the hospital authority and the active co-operation of the heads of the different departments and the group and hospital secretaries. The Woodbine Parish Report suggests that Building Supervisors should be provided with professional support at RHB level by the appointment of a professional officer on the staff of the Regional Architect who would be responsible, on behalf of his chief officer, for advising upon all technical aspects of maintenance.

Working Methods

13. There should be a functional Committee to which the Group Engineer and the Building Supervisor can report and the necessary machinery at Committee level for ensuring that the Group's expenditure on maintenance is the right amount to spend and is being wisely spent. A costed long-term plan for bringing all buildings and equipment in the group up to a satisfactory state of maintenance should exist and be updated annually. This will provide guidance *inter alia* on progress achieved and the extent to which current revenue can be used to avoid incurring much greater costs in the future.

14. The urgency of some hospital engineering and building maintenance makes it necessary for staff to be available quickly to rectify faults. Permanent staff will be familiar with the conditions of the hospitals and will be able to undertake work with the minimum amount of interference with hospital routines. With direct labour, there is also the advantage of flexibility since it is easier to modify work programmes in the light of changing circumstances. The main drawback is the probability that the staff will at times be under-employed and this can be overcome as a result of the introduction of a planned programme. Unless, however, the total number of staff is closely related to the planned programme, there will still be unoccupied time. Generally, the number of directly employed staff should be kept to the minimum that will ensure an amount of work which will keep them steadily and effectively employed. This will allow the balance of the work, which is likely to be less regular in its incidence, to be placed out to contract in good time.

15. In some hospitals, such as small isolated units in large groups, it may be that all maintenance work should be done by local contractors on an 'on call' basis to avoid incurring excessive travelling time. There are, however, no hard and fast rules which can be applied to determine whether all or part of the maintenance work should be done by contract or direct labour. Each case must be considered on the basis of overall standards of efficiency and economy. In order to optimise the effectiveness of a direct labour force, as many of the resources as possible should be centralised and subject to close planning and control. It is likely that this can be achieved by:

- (1) a centrally controlled group team of workmen

to deal with any maintenance and upgrading work which can be carried out economically by direct labour; and

- (2) a reduced labour force attached specifically to each hospital to carry out minor day-to-day repairs and to operate any planned maintenance schemes.

16. In general, the normal work load of the maintenance staff should not consist of satisfying *ad hoc* requests for a repair or replacement. If *ad hoc* requests are the rule, most of the work becomes urgent and the incidence of work is unpredictable making the economic and effective use of maintenance staff difficult. Supervisors will have no clear idea of what the men are doing or of how long they should take on each job. Routine maintenance of plant and equipment should be planned on an annual basis: each item being inspected and maintained in accordance with its own requirements. The advantages of such a plan are:

- (1) plant and equipment is regularly inspected and maintained and deterioration is brought under control;
- (2) breakdowns are almost eliminated;
- (3) the interval between replacement of items is extended;
- (4) work can be done at convenient times without disruption to the normal services;
- (5) the volume of work becomes a known, rather than an unknown factor, for staffing and financial control purposes.

Hospital Technical Memoranda Nos 12 and 13 describe the requirements of Planned Preventive Maintenance programmes. In many hospitals, up to 50 per cent of the total maintenance budget can be absorbed in dealing with breakdowns and *ad hoc* requests. Within a year or two of the introduction of planned maintenance work it should be possible to reduce this to about 5 per cent.

17. The objective of a building maintenance scheme is to keep or restore hospital premises to acceptable standards of safety and efficiency, having due regard to the needs of the Health Service, the resources available and the conditions under which the work has to be carried out. A Hospital Technical Memorandum is being prepared which will demonstrate how this can be done. It will describe how to draw up a planned programme, how to determine and set up the necessary organisation and how to ensure that the work is carried out effectively and efficiently.

18. A long term forecast should be prepared by the Building Supervisor for up to 5 years ahead, to include foreseeable renovations, repairs, replacements and improvements. This should be reviewed and extended each year. Annual building and painting work forecasts should be prepared in October and incorporated in the survey of revenue expenditure for the next financial year. The following should be put on a definite planned basis rather than 'as required':

- (1) painting maintenance (including washing down);
- (2) road and path repairs;
- (3) roof and guttering maintenance;
- (4) pointing of brickwork;
- (5) modification of shelves or storage;
- (6) floor sanding;

- (7) flush panelling of doors;
- (8) repositioning of departmental fittings/equipment.

Other items, which should also be part of the annual programme for building maintenance work, are listed in paragraph 16 of Hospital Technical Memorandum No 12.

19. The programme of maintenance work for the year should not be based on the allocation of financial provision of a given amount against which jobs done during the year are charged until the sum is exhausted. A sum, based on a calculation of the cost of planned maintenance plus an allowance for emergency work and minor repairs, should be computed and the amount needed for major jobs should, so far as possible, rest on a schedule of approved jobs for which estimated costs have been agreed. Under this arrangement, work done would be to a predetermined programme and the cost of individual large jobs would be compared by means of suitable job costs with the estimated cost, thus providing a running control over this class of work.

20. In order to provide information on which the Committee can judge the effectiveness of employing direct labour, competitive tendering on a realistic basis should be encouraged. There should be a comprehensive job costing system for major items of work under which all jobs of a significant size are costed and the final costs compared with prior estimates. Paragraphs 90-98 of Hospital Technical Memorandum No 12 set out a method of assessing the full cost of carrying out direct labour maintenance work.

21. It is useful to check occasionally the cost of labour and materials used to maintain items of equipment in order to see whether the cost of maintenance is reasonable. An analysis of the time spent on different types of repair work will also indicate the possible need for replacement (eg. rewiring rather than continued *ad hoc* repairs).

22. Comparison of the costs of similar jobs, for example, redecorating wards, may show surprising variations which can be the result of differences in the scale of alterations and standards of fittings. Investigations may be usefully made with the aim of setting limits within which costs should be contained and specifying minimum standards for essential features.

23. Hospital Secretaries should be advised (a sample basis is sufficient) of the approximate labour and material costs of minor maintenance work which they have approved in order that they may appreciate the cost of such work as a guide to approving future requests.

24. In some circumstances, for example, when a large job is undertaken by Direct Labour or when contract and direct labour work needs integration, consideration should be given to the use of network analysis to plan and control the work. Abstract of Efficiency Studies No 139 describes a 4-year washing and painting programme and shows the network analysis and detailed planning for the painting of a ward. The use of this technique is likely to have the following advantages:

- (1) greater precision in detailed planning and control is obtained throughout the project;

- (2) adequate warning is obtained of timing conflicts and areas likely to prove troublesome;
- (3) better use is made of resources;
- (4) a real understanding is obtained of the problems involved in meeting a scheduled completion date.

25. However carefully the system of regular inspection is built up, emergencies and breakdowns may still occur. To cope with these there should be machinery for:

- (1) prompt notification of such occurrences;
- (2) immediate repairs (or eventual repairs if there is no urgency);
- (3) ascertaining the cause;
- (4) preventing a repetition.

26. Standard procedures should exist which enable any work outside the normal programme to be adequately controlled. They should enable the appropriate priority to be determined so that it can be fitted into its correct place in the programme. The notification of work to be done should be in writing, with urgent work being requested by telephone in the first instance with subsequent notification in writing. Requisitioning officers should be asked to state clearly what needs to be done. Where local jobs are undertaken by hospital staff acting on orders from Hospital Secretaries, the same practice should be followed, except that the request forms would be passed to the head of the maintenance department retrospectively, after the work had been completed. A system for dealing centrally with requisitions should contain two essentials:

- (1) officers who initiate requests should be informed as soon as possible whether the job can be done and an estimate of the commencement date should be given. If the job cannot be done within a reasonable time, or cannot be done at all, the reasons should be fully stated;
- (2) the Group Engineer / Building Supervisor should keep under constant review all jobs awaiting attention.

Abstract of Efficiency Studies No 80 describes a requisitioning procedure which was introduced after a study of a Works Department in a hospital group of 900 beds.

27. Good supervision of workmen requires that:

- (1) so far as possible the workmen should understand beforehand what is to be done and be allowed the appropriate time in which to do it;
- (2) adequate technical guidance and assistance is made available, as necessary;
- (3) jobs should be checked as necessary after completion to ensure that they have been carried out satisfactorily.

28. It is the usual practice for workmen employed at the main hospital to report to a common point, normally the maintenance workshops, at the beginning and end of each day to change clothes and collect, deposit tools, etc. A day's work can be allocated to each man at the beginning of each day which at the end of the day can be checked to make sure that it has been done. This can be done by using a combined daily work allocation time sheet which can be used in conjunction with a weekly summary sheet for wages compilation. Suggestions for the design and use of work allocation sheets appear in

paragraphs 68-71 of Hospital Technical Memorandum No 12.

29. Shortly after appointment, a tradesman should be made aware of the working routine of the hospital so that he will know when best to do his work and will appreciate the need to keep noise and disruption to a minimum. He will also be better able to understand the complex framework of authority within a hospital.

30. Authorisation of variations to the specifications of work being carried out under contract should always be properly authorised and channelled via the Engineer or Building Supervisor for approval by administration or by the Committee and should always be confirmed in writing. The Engineer or Building Supervisor should always carry out a thorough inspection and testing of contractor's work before the expiration of the retention period and before the payment of the final account is authorised.

31. Separate stores for the Engineer and the Building Supervisor are unnecessary and can lead to duplication of stock items. Some hospitals have been able to include these items in a separate section of the Main Stores to be issued by the staff of the Main Stores. This arrangement can help to improve the control of the stock range and can also reduce stock holding costs. In scattered hospitals, use should be made of fixed quantity sub-stores, particularly for inexpensive items in constant demand, eg. lamps. Stocktaking and inventory checking would, of course, be more difficult and possibly the risk of loss through petty pilfering greater. Where stores are dispersed in this way, a simple recorded replenishment system should disclose whether abnormally high consumption merits enquiry.

32. Although the range of stock items is considerable, the number held of any individual item is usually quite small and, except in isolated cases, comparatively insignificant. There is a danger that the cost of purchasing and stock control procedures will be out of proportion to the value of the stocks. Hospitals can keep the stock range to a minimum by purchasing against annual contracts (or trade terms less a small discount) with large builders' merchants and ironmongers. This type of arrangement can also reduce the amount of clerical staff time in deciding where to place an order or in trying to obtain a higher rate of discount where the yield is insignificant in relation to the effort involved. Abstract of Efficiency Studies No 36 describes a study to determine the space requirements for an Engineers' Department Stores during which the stock range was examined. As a result, there was a net reduction in the number of stock items of 18 per cent which, in turn, reduced the amount of space required by over 20 per cent.

Staff

33. Insufficient evidence is at present available to enable staffing ratios to be calculated for the staff of Engineering and Building Maintenance Departments. In a hospital in which planned preventive maintenance takes place, the number of directly employed maintenance staff should be closely related to the planned programme to ensure that, for all the

different trades, there is an amount of work available which will keep them steadily and effectively employed.

34. The Engineer/Building Supervisor's prime responsibility is for the day-to-day management of maintenance work and for the preparation and submission of management data to administration. To discharge this responsibility he should:

- (1) be in attendance at committee meetings when building and engineering maintenance is discussed;
- (2) have sufficient clerical assistance to enable him to perform his administrative functions.

Efficient management of maintenance work must be based on a complete knowledge of all buildings, plant and equipment. The technical work involved in preparing drawings, specifications, etc will cause a fair proportion of the Engineer/Building Supervisor's time to be spent in the office. He should be relieved of all routine clerical work so that he may have the time to visit and inspect all premises and to control his department. All clerical work and records should be centralised in order to maintain the Engineer/Building Supervisor's overall control except where directly employed staff are dispersed throughout the group when custody of routine inspection and maintenance records will have to be left to the Hospital Engineer.

Equipment

35. The wide range of equipment in a hospital can require the provision of special tools and equipment which can hardly be regarded as the craftsman's responsibility to provide even if he is in receipt of a tool allowance. While adequate security is essential, these tools should be available to the craftsman needing them. In some cases it may be advantageous to make up individual tool kits for special jobs, eg. for servicing floor polishing machines. Special trolleys can save time and should be designed to carry the necessary tools and spares, etc for electrical, carpentry and plumbing maintenance.

36. There is merit in duplicating the provision of some relatively inexpensive equipment. For example, duplication of painters' trestles, etc should ensure that equipment is always available at sites before jobs commence so that painters can move from job to job without incurring delays in waiting for equipment to be transferred. Similarly, the provision of step ladders at specified points throughout the hospital can eradicate wasted time in looking for and carrying ladders from place to place.

37. A plant register is an invaluable aid to management and should contain the following information:

- (1) details of machinery, for example, in the laundry, showing date of installation, type, load, size, etc;
- (2) the hourly and weekly capacity per machine;
- (3) the present hourly and weekly output per machine;
- (4) a record of lost man hours due to:
 - (a) breakdown/routine maintenance,
 - (b) staff absences,
 - (c) other reasons.

38. Where transport is required, its use should be planned at least a day in advance to integrate with the proposed deployment of staff on that day and if necessary with the requirements of the Group Transport Service. Care should be exercised to ensure that any vehicles especially purchased for or allocated to the Engineers' Department, where an allocation can be justified, are of the correct size for the type of loads they have to carry. Consideration should be given to hiring when the need for a particularly large vehicle arises infrequently.

Selective Bibliography

39. The following documents contain information which may further assist officers concerned with the provision of Engineering and Building Maintenance Services:

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 16 *Control of Expenditure. Engineering and Building Maintenance Work.*

No 36 *Stores - accommodation requirements for new building.*

No 80 *Building and Engineering Maintenance-requisitioning procedure.*

No 139 *Internal Ward Wall-washing and Painting.*

Hospital Technical Memoranda, London. HMSO

No 12 *Maintenance of Buildings, Plant and Equipment.*

No 13 *Planned Preventive Maintenance.*

Hospital Building Maintenance - Report of Committee of Inquiry (Chairman: David Woodbine Parish), London. HMSO

In addition, the following documents are being prepared for publication:

Hospital Building Note: *Works Department.*

Hospital Technical Memorandum: *The Organisation of Building Maintenance.*

The first part of the paper discusses the importance of the study and the objectives of the research. It highlights the need for a comprehensive understanding of the subject matter and the role of the researcher in this process. The second part of the paper describes the methodology used in the study, including the selection of participants, the data collection methods, and the analysis techniques. The third part of the paper presents the results of the study, which show a significant correlation between the variables being studied. The final part of the paper discusses the implications of the findings and offers suggestions for future research.

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Equipment

The equipment used in the study was of high quality and was calibrated before use. The data collection was done using a specialized software program that allowed for real-time monitoring and recording of the data. The analysis was done using a statistical software package that provided a range of statistical tests and measures. The results of the study were presented in a clear and concise manner, using tables and graphs to illustrate the findings. The implications of the findings were discussed in detail, and suggestions for future research were provided.

Scope

1. For this purpose, the term Linen Services includes the laundering of linen and uniforms, the storage of clean linen, and the alteration, repair and replacement of linen and uniforms. The distribution of linen is also included and references may also appear in the section for the Portering Services. It excludes the collection of soiled and infected linen, the linen requirements of the CSSD and the care of and distribution of linen within the user departments. These aspects will be included in the sections for the departments concerned.

General Considerations

2. The present concept is that of hospital laundries designed to supply areas or a number of groups. Unless there are special conditions such as excessive transport costs, no new laundry having a throughput of less than 55,000 articles per week is considered to be an economic unit. Nevertheless 90 per cent of existing laundries process less than this. In general, larger laundries tend to achieve lower unit costs and offer much more scope for continued improvements. Subject to overall Regional Laundry planning considerations, for small hospitals with their own laundries, where a new area laundry is more than, say, three years distant, it is worth investigating the comparative costs of:

- (1) the present arrangements;
- (2) adopting an evening shift to absorb the work of neighbouring laundries; and
- (3) contracting the work out to commercial laundries. Where this arrangement is being considered the cost of any laundering work which is still to be done in the hospital must be taken into account.

3. There seems to be scope for exploring (2) and (3) where a hospital laundry processes less than 10,000 articles each week. Total laundering costs have been shown regardless of the level of output to be more sensitive to productivity of labour than to any other factor, thus emphasising the crucial role of management. Wages generally comprise about 59 per cent of operating costs and about 41 per cent of total production costs. In new laundries, the number of articles processed per operator per week should not be less than 1,600. Further comments on size, cost

and efficiency of hospital laundries appear in Hospital O & M and Work Study Report No 12.

4. Modern factory management techniques are applicable to a hospital laundry and a comprehensive programme for improving and maintaining laundry efficiency should include the following:

- (1) Product Design. Can the article be eliminated, replaced economically by disposables, simplified or standardised?
- (2) Sequence of Operations. Can any operation be eliminated, combined or simplified?
- (3) Work Place Layout and Equipment. Can the workflow be improved and handling be reduced by repositioning equipment and/or using mechanical conveyors?
- (4) Staff Training. Can the operators work be expedited and made less laborious by appropriate training based on motion study principles?

The two main objectives of Laundry Management are:

- (1) to maintain a balanced daily throughput of the number and type of articles required by the Central Linen Room;
- (2) to achieve the minimum total cost per article laundered without lowering standards.

5. Efficient laundry management requires precise knowledge of the output of each process and the labour, materials and services involved. Records should be maintained to provide this control information. The use of a Job Specification Sheet is recommended for each work station giving step by step instructions regarding the methods to be employed in processing the various classes of linen involved.

6. The laundry manager should be consulted on the purchase of textiles in relation to laundry costs and should arrange tests for shrinkage, colour fastness, etc. He must be consulted in the purchase of new laundry equipment so that its value in terms of increased production or reduced labour costs can be assessed.

7. The basic principles to be observed in organising hospital linen supply systems can be summarised as follows:

- (1) the system must always be geared to the current needs of user departments;

(2) there should be maximum standardisation of articles in order to simplify laundry operations and linen distribution procedures;

(3) there should be maximum utilisation of linen stocks.

Observance of these basic principles and the maintenance of effective quality, quantity and cost control requires close co-operation. One way in which co-operation can be fostered is to set up a Linen Services Committee comprising the Laundry Manager, Linen Superintendent, representatives of user departments, the officer responsible for the distribution of linen, and a senior administrator as Chairman.

8. A central linen room should exist adjacent to the laundry, if possible, and should provide users with a comprehensive range of items. Each separate hospital should have a linen room to receive and despatch laundry consignments and to issue clean linen to users.

9. Sewing room work is an integral part of the Linen Supply Services and as such should be under the overall control of the officer responsible for supplies, day to day supervision being exercised by the Linen Superintendent or, in the absence of this post, by the Workroom Mistress. All linen repairs, marking and manufacturing should be carried out in the Central Sewing Room to achieve the maximum rationalisation of work and maximum economy of labour.

10. The establishment of a Group Central Linen Service should eliminate the need for condemning procedures at hospital level and issues of new linen should be made to the Central Sewing Room. Whenever a hospital loses its on-site sewing service, special local work, eg. curtains, equipment covers should be measured by a visiting seamstress from the Central Sewing Room.

Working Methods

11. Arrangements should be made to review periodically the various types of articles processed to bring to light:—

(1) needless variety in the design of articles which serve a similar purpose, eg. bed linen, staff uniforms, variously named 'cloths';

(2) particular features of article design which create laundering problems, eg. 'gathered' waist bands in aprons; unnecessary thickness (causing duplication of drying/finishing work on the ironing machine); fastening tapes on gowns;

(3) various articles for which, having regard to the actual underlying cost of laundering them, disposable substitutes may be preferable, eg. face masks, theatre caps, bed-pan covers, nurses' laundry bags, nurses' caps, 'feeders' (bibs), tray cloths and hand towels.

A local review of linen in circulation also provides the opportunity to give early effect to the nationally agreed article specifications.

12. Correct laundering methods should be established for each class of article, to ensure that the simplest methods are employed consistent with the standard of 'finish' strictly required for each type of article. It has often been found that articles have

been finished to a higher standard than is strictly required, for example:

(1) theatre clothing is invariably autoclaved after laundering and, therefore, need only be processed by the ironing machine;

(2) sheets may be put through the flat work ironing machine a second time in order to remove a slight residual dampness in the sheet hems. This duplication of work is costly and can often be avoided by proper attention to machine speed and steam pressure;

(3) the modern type of nurses' apron can usually be finished to an acceptable standard by the flat work ironing machine instead of using the much more expensive press finishing operation.

(4) many covers and cloths often require nothing more than washing and tumbler drying yet are commonly given much more elaborate and expensive treatment.

13. Flatwork ironing accounts for about two-thirds of the total articles 'finished' in the laundry and must be organised to secure the maximum use of machine capacity and operators, particularly to ensure that:

(1) consistent with drying efficiency, the machine speed is as high as it can be;

(2) the number of articles being put through a second time, is kept to a minimum;

(3) the operators are kept supplied with uniform batches of prepared work;

(4) the whole width of the drying bed is utilised and that the gaps between articles is kept to a minimum;

(5) folding does not slow down the whole operation;

(6) if the laundry processes over 40,000 articles weekly, automatic feed and folding attachments should be considered if they do not already exist.

Attention to the above should increase output of flatwork by up to 25 per cent. Damaged linen should be removed during processing and sent direct to the sewing room for repair or replacement. Stained articles should also be picked out during ironing. Ideally, the number of stained articles which need to be removed at this stage should be very small but at the maximum should be less than 5 per cent of throughput.

14. Excessive peaks of arrival of soiled linen can cause delay in making clean linen available and cause undesirable fluctuations in day to day workloads. This may lead to shortages of clean linen resulting in special and, therefore, inefficient laundry runs to fill 'panic' orders and in uneconomic staffing levels to cover the fluctuations in load.

15. Overall efficiency depends on achieving the correct relationships between:

(1) the workload;

(2) machine output capacity;

(3) operator performance.

Action should be taken to ensure that these relationships exist otherwise there is a danger that the capacity of the laundry will not be fully utilised. A reliable method of calculating output is required. This can be done by weighing, using issue figures from the Linen Room or by taking a sample count each week. Methods of doing this are described in Hospital O & M and Work Study Report No 12.

16. A Laundry Manager needs to reconcile the daily issue requirements of the Linen Room with his own need to maintain a balanced flow of work to the various laundering processes. The Linen Room Superintendent should supply a summary of daily linen issues as a daily production target and each work station should have a daily work schedule providing the operator with 'targets'. The comparison of actual output with these targets will indicate a degree of success each operator is achieving and action can be taken to remedy any recurrent failures.

17. Work should be released from the sorting room in uniform batches correctly classified to eliminate the need for in-process sorting at subsequent stages. The number of classifications should be kept to the minimum necessary, eg. classification by user may not be necessary, to avoid delays in passing linen to the wash room. Care should be exercised in selecting containers for the movement of soiled linen since some types can give rise to unnecessary handling.

18. If excess production capacity exists, consideration should be given to increasing the throughput, perhaps by providing a laundering service for other hospitals subject to the Regional Laundry planning arrangements, if this can be arranged economically. Capacity can sometimes be increased by a short evening shift, enabling the work of a smaller laundry to be absorbed.

19. Unnecessary handling operations can be costly, eg. one unnecessary precalendering fold given to a sheet in the laundry of throughput of 50,000 articles per week can waste as much as three-quarters of one full time member of the staff. All procedures should be critically examined to ensure that methods are consistent with the requirements of the finished product.

20. Carefully designed trolleys can help to reduce movement and handling in most areas of the laundry. Where the washroom is on the same level as the sorting room soiled linen should be classified directly into trolleys to avoid double handling into and out of classifying racks. High level trolleys can reduce the effort involved in transferring loads from extractors into drying tumblers. Mobile racking should be used for collecting finished work from the machines and transporting it to the packing section. In some cases, it may be possible to pack ward and departmental linen supplies direct from the finishing process using mobile bag holders, thus avoiding double handling into and out of the storage racks.

21. Laundry Managers should be supplied with timely and relevant information concerning the items of expense for which they are directly responsible.

22. The main types of linen distribution systems in hospitals are:

- (1) exchange trolley direct from a central linen room;
- (2) daily quota direct from a central linen room;
- (3) topping up from a hospital linen room;
- (4) requisitioning from a hospital linen room.

Because of the labour costs involved in maintaining hospital linen rooms, the linen distribution system should be direct from a central linen room situated adjacent to the laundry supplying users direct. Of

the two systems operating from a central linen room, the daily quota system is preferred as the initial equipment cost of an exchange trolley system is considerably more than the cost of the daily quota system. Generally, however, the daily quota system and the exchange trolley system are similar in that a day's use is pre-determined and issued direct from a central linen room: the systems differ only in the physical methods of handling the linen.

23. Vehicles allocated to the Linen Service may be of the prime mover and trailer type when dealing with large volume production but in other cases they should meet the specifications contained in the Linen Services Report. Any vans used for transporting soiled or clean linen to or from the laundry should be capable of being thoroughly cleaned and disinfected after each journey. When hospital trucks are used for soiled linen, they should also be disinfected after each journey. Containers of clean linen must, of course, be kept dry and especially rest on a dry surface during transit.

24. Containers of washable cotton/terylene for common linen and return to user items, can, if the laundry system allows, also be used for the return of soiled linen. Personal linen can be wrapped in heat sealed bags and the same bag used to return the soiled items.

25. Containers for infected linen should be waterproof, strong, cheap (or disposable) and light to carry. Light gauge polythene bags enclosed in a washable outer canvas or nylon bag for transit purposes are recommended. The outer bag should be coloured and marked to identify the contents. Other containers eg. rigid plastic bins, and heavy gauge polythene bags are suitable but could prove expensive and may have other disadvantages. Although alginate stitched plastic bags are also expensive they should be used for linen from patients with typhoid.

26. Attention should be directed to security measures such as:

- (1) the reduction of linen holdings everywhere to the minimum;
- (2) the locking of stock rooms and the restriction of the number of persons having access to them;
- (3) recording and sealing of containers during transit and the insistence on receipts at each stage for the number of containers;
- (4) constant and positive supervision by all staff having linen in their charge;
- (5) spot checks by the Linen Room Superintendent at any stage of the linen cycle;
- (6) frequent systematic and accurate condemning procedures.

27. As the Workroom Mistress in the Central Sewing Room must sort damaged items in order to allocate them to the staff, items which are worn or damaged beyond repair should be placed aside at this stage to be examined subsequently by the Condemning Officer.

28. Some repairs cost more than the article is currently worth and careful scrutiny of the articles for repair should be carried out to ensure that only economic repairs are undertaken. The thermo-patch linen repair system eliminates the need for skilled seamstresses to spend valuable time repairing items

of linen. Studies have revealed that this system can be used to repair at least 50 per cent of all damaged or worn articles.

29. In view of the very real and expensive problems of marking, the retention of individually marked hospital linen is not compatible with laundering economies, minimum linen stocks and efficient linen supply. The specification working party on bed linen suggests that it is difficult to justify inter-weaving on economic grounds. Of other methods of marking available, the use of a pantograph attachment to a domestic sewing machine has been found to be much more costly than the use of a system of rubber stamps and felt tip pens.

30. After repair and rewashing, linen should be returned to the Linen Room for distribution. At no stage is there considered to be any need for listing, exchange of signatures or any other form of paper work. Sewing room records should be restricted to a repairs and condemned book, a goods received book, a material conversions book (itemised) and a staff uniform index card. A standard measurement form should be used for recording staff measurements.

31. Much of the manufacturing activities undertaken in the hospital sewing room is uneconomic. It is recommended therefore that manufacturing activities should be restricted to those articles which:

- (1) cannot be obtained from linen manufacturers; or
- (2) can be made at a price significantly lower than the outside manufacturers' costs.

Staff

32. The following performance figures have been produced after a series of production studies. The figures are based on the hourly output of a reasonably competent operator working under normal conditions and with reasonably efficient equipment. They are expressed in terms of a nominal 75 performance on the BSI scale and relaxation and contingency allowances, synchronisation loss, lost time, and unmeasured work, etc have been allowed for. They have been taken from Hospital O & M and Work Study Report No 12:

- (1) Sorting and Classification:
 - (i) General hospital, 400 articles per hour;
 - (ii) Psychiatric hospital, 460 articles per hour;
- (2) Washing (includes conveying from classification and hydro extraction):

<ol style="list-style-type: none"> (i) Manual controls 400 lb per hour Hydro extraction 600 lb per hour (ii) Automatic controls 560 lb per hour Hydro extraction 600 lb per hour 	$\left. \begin{array}{l} \text{---} \\ \text{---} \\ \text{---} \end{array} \right\} 240 \text{ lb per hour}$ $\left. \begin{array}{l} \text{---} \\ \text{---} \end{array} \right\} 300 \text{ lb per hour}$
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- (iii) Wash/extractors 500 lb per hour;
- (3) Tumbler drying, 850 lb per hour;
- (4) Folding tumbled work, 250 articles per hour;
- (5) Calendering (with folder) and associated preparation, 87 articles per hour;
- (6) Pressing and folding, 30 articles per hour;
- (7) Hand ironing, 12 articles per hour;
- (8) Packing and racking, 250 articles per hour.

33. Laundry efficiency is very sensitive to changes in the morale and utilisation of staff and therefore the ability of the manager to motivate and control staff is of paramount importance. Because of the laundry manager's comparative isolation from the hospital administration, the efficiency of his department is often largely dependent upon his personal skill and initiative. The increased emphasis on modern management techniques should be reflected in the training of laundry managers. Technical competence is most important but unless this is complemented by management expertise the laundry manager will not be fully effective. To build an efficient laundry service, it is necessary for staff training needs to be determined and adequate training facilities provided for all grades of laundry staff.

34. A linen turnover of 60,000 or more articles weekly usually justifies the appointment of a Linen Superintendent. The Superintendent should normally be accountable direct to the officer responsible for the distribution of supplies and not to the Laundry Manager. Where the weekly turnover is significantly less than 60,000 (broadly equivalent to less than 1,000 beds served) the day to day supervision of linen packing and despatch can be undertaken by a working chargehand in the Central Linen Room. Studies have so far suggested that the ratio of staff likely to be required in the Linen Room is one assistant to between 12,000 and 14,000 articles handled per week.

35. Depending on the policy of the Sewing Room there is some evidence to suggest that one seamstress will normally be required for each 4,500 items handled each week by the Linen Room. The ratio might also be expressed as one seamstress for 80 beds.

Equipment

36. In order to achieve maximum machine utilisation, careful calculation and planning of machine times and matching of machine loads should take place. The following are among the more important factors which should be taken into account:

- (1) machine capacities should be compatible to avoid, for example, a 130-135 lb load from the washer/extractor having to pass to a tumbler dryer with a capacity of 100 lb;
- (2) the sequence of machine operations should be controlled to prevent simultaneous stopping by two or more machines allocated to the one operator and to keep machine down-time to a minimum;
- (3) machine loadings and times should be correct for the degree of finish required;
- (4) machine output will be reduced if optimum machine cycle times are exceeded and if water temperatures are incorrect. Longer running may also cause dirt to be re-deposited in the articles being washed;
- (5) machine output may be reduced if loads are not of the correct weight. Overloading machines is likely to involve longer cycle times.

37. Inefficient calenders or over provision of calender capacity may be highly uneconomic of labour. A

large modern calender will cope with a total throughput of 50–60,000 articles per week, given a sheet spreader and automatic folding machinery. Five staff should be adequate to man the calender (plus one to feed work to the sheet spreader operator). Important factors of calender operation are:

- (1) the calender speed should be optimum for its design;
- (2) the fitting of feeding and folding machinery can increase the throughput considerably. The fitting of extra rolls and gap pieces may also increase the calender's capacity;
- (3) edge to edge feeding should be maintained as far as possible. This will involve careful, planned preparation and feeding. Care must be taken to ensure that edge to edge feeding is not achieved solely as a result of unnecessarily slow calender speeds or excessive time spent on preparation.
- (4) selvedge feeding of sheets will increase output, if the calender size is suitable;
- (5) sufficiently large batches of similar articles should be assembled to provide long calender runs without change of speed;
- (6) it may be possible by increasing the steam pressure, by improved pre-drying or by special runs at a slower speed to avoid passing articles through the calender more than once;
- (7) it may be worthwhile considering the replacement of two older less efficient calenders by one modern machine.

38. Hydro-extractor processes usually involve heavy work and labour saving equipment is generally justified. A loading hoist, such as that described in Abstract of Efficiency Studies No 37, may reduce hydro-labour by as much as 50 per cent at the same time as increasing throughput by 10 per cent.

39. Some small machines will generally be needed in the wash-house to deal with small classifications, for example, 'laundrette' equipment for staff/patients personal clothing: small diameter tumbler dryer to prevent woollen shrinkage.

40. Studies have shown that cabinet drying machines are generally less economic than tumblers. Output from cabinet type garment presses has been found to be significantly more than conventional rotary presses and requires similar floor space.

41. An effective programme of preventive maintenance should take place to minimise machine breakdown. It should be devised to cause the minimum amount of interruption to laundry processes.

42. A plant register is an invaluable aid to management and should contain the following information:

- (1) details of the laundry machinery showing date of installation, type, load size, etc;
- (2) the hourly and weekly capacity per machine;
- (3) the present hourly and weekly output per machine;
- (4) a record of lost machine-hours due to:
 - (i) breakdown/routine maintenance;
 - (ii) staff absence;
 - (iii) other reasons.

A copy should be held by the Group Engineer and possibly by the Regional Engineer.

Materials and Services

43. In order to avoid extravagant use of materials:

- (1) access to bulk stocks should be strictly controlled by the Laundry Manager;
- (2) the calculated materials requirements should be released to the wash-room on a daily/weekly basis;
- (3) wash-room staff should be properly instructed regarding the allowed quantities of soaps, detergents, etc per load and provided with standard measures if automatic washing controls are not fitted;
- (4) wash-room demands for additional materials will be evidence of extravagance requiring investigation by the Laundry Manager;
- (5) a materials book should be used to record the receipt of bulk supplies, standard weekly issues and weekly excess figures. This same record should be used by the Hospital Management Committee Treasurer for costing purposes. By this means, unit costs would reflect actual consumption of materials, and not as sometimes found the amounts invoiced during the accounting period.

44. The cost of introduction of disposable items must be realistically assessed. The cost comparison must be made between:

- (1) the purchase price, storage cost and the disposal cost of disposable items, and
- (2) the actual cost of laundering the particular linen items plus its purchase price and estimated life.

45. In addition to cost, other factors which must be taken into account are the total laundry capacity available, the extra work created on the supplies and storage functions, the acceptability by staff, the affects on the risk of cross infection, the control of use and incidence of wastage. The following disposable items are among those which should be considered for use:

Hand Towels,
Tea Towels,
Serviettes,
Bed-pan Covers,
Urinal Covers,
Face Masks,
Operation Caps,
Clinical Sheets.

46. The cost of steam production is usually outside the Laundry Manager's control, on the other hand the quantity of steam consumed by the various laundering processes is largely within his jurisdiction. As a routine instrument of control the metered consumption of steam should be charted on a graph using target figures as a reference line.

47. Some laundries are more fortunate than others in respect of the price and suitability of water supplies. Even so, it is the Manager's duty to regulate the quantities used and maintain a similar record to that referred to above for steam control.

48. An insufficient or excessive number of rinse cycles or incorrect 'depth' (water level) may not only give a low standard of cleanliness or reduced output but may waste water and steam. Leakages may also

waste considerable amounts of water. Manually controlled machines should not use more than 4½ to 6 gallons of water per pound weight, machines with automatic controls not more than 3 to 3½ gallons per pound weight and machines with water re-use systems not more than 1½ gallons per pound weight of linen.

Accommodation

49. Work should proceed from sorting room to packing section by the shortest possible route avoiding 'dog legs' and back tracking, thus reducing movement of linen and operatives. About two articles out of every three are so called 'flat-work' and ironing machine finished. Accordingly this main route must be given top priority when siting machines in relation to each other and when considering the scope for mechanical handling facilities. The layout of equipment must follow the sequence of operations; machines should not be too close or sited at right angles which prevent free passage with loaded trolleys. Machine doors which open towards each other can prevent simultaneous loading and unloading. It may be useful to install conveyors in the press area to take work to operators and to remove pressed articles.

50. It is suggested that a Central Linen Room should be sited at each hospital laundry with a capacity to hold approximately 50 per cent of the linen stocks in circulation. A Central Sewing Room should be created nearby for all repairs and tailoring. Storage accommodation at user/department level should be capable of holding 48 hours supply and to safeguard hospitals against unforeseen difficulties an emergency stock equivalent to 5 per cent of each of the ten most popular items should be provided at hospital level. In order to achieve the maximum flexibility of storage equipment and to reduce the time spent on

handling linen between the end of the production lines and the linen stores it has been found that the most practical method is by the use of movable racks.

Selective Bibliography

51. The following publications contain information about the organisation of hospital linen services:

Hospital O & M and Work Study Reports: London.

HMSO

No 12 *Organisation and Management of Hospital Laundries.*

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 3 *Sewing Room Work.*

No 37 *Laundry Work - loading and unloading hydro-extractors.*

No 48 *Sewing Room Work.*

No 56 *Laundry Work - preparing sheets for calendering.*

No 60 *Laundry Work - calendering capacity.*

No 71 *Linen Containers.*

No 91 *Marking of Linen.*

No 94 *Linen Containers - Collection of Fouled Linen.*

No 104 *Central Linen Room.*

No 112 *Laundry Work - Weighing Hoppers and Travelling Loading Bogies.*

No 123 *Delivery and Collection of Ward Linen.*

Hospital Building Notes: London. HMSO

No 25 *Laundry.*

Hospital Laundry Arrangements - Report by Medical Supplies Working Group - Sterilisation Group - Steering Committee - Sub-Committee on Hospital Laundries.

In addition, the following report is being prepared for publication:

Management Services (NHS): *Organisation and Management of Hospital Linen Services.*

Scope

1. For this purpose, the term Transport is defined as being the organisation and management of the external transport arrangements in a Group. The section does not include guidance about the movement of supplies, etc within the hospital nor to the normal arrangements for the authorisation and use of the private cars of staff. References to the movement of goods within the hospital will be included in the sections for Supplies, Stores and the Portering Services.

Organisation

2. Studies have shown that the organisation of hospital external transport varies greatly. There are centralised group transport departments, sub-group transport centres and completely decentralised arrangements. In many instances, vehicles are allocated to certain departments for their specific use. However, unless transport is regarded as a group service and is planned on a group basis, there is a very real danger of duplication of journeys. The initial planning should be undertaken at Group Administration level and should include:

- (1) an assessment of the group transport needs;
- (2) an investigation to determine the best transport programme to meet these needs;
- (3) the determination of the best distribution of transport bases within the group to provide an efficient service;
- (4) a study to determine which vehicles are the most suitable for the particular needs;
- (5) the compilation of realistic driving rotas to operate the transport programme in the most economical manner;
- (6) arrangements for the maintenance of vehicles;
- (7) a programme for replacement of vehicles;
- (8) arrangements best suited for the management of the transport service.

3. From a series of studies the conclusion was drawn that significant improvements, possibly of the order of 15 per cent, are generally possible in transport services, mainly by improving journey co-ordination and better control over the use of vehicles and drivers.

Working Methods

4. Responsibility for the control of the Transport Service should be allocated to a senior member of the Group Administrative staff. When it is necessary to have vehicles and drivers at more than one base, the senior driver should be regarded as representing the Group Transport Officer. Full liaison should exist between the Transport Officer and officers responsible for the control of any departmentally allocated vehicles.

5. The majority of journeys can be programmed in advance but there is also the need to provide transport for *ad hoc* requirements. Submission of requests to a central control point is usually the best and most economical way to organise these journeys. It is by no means certain that the employment of drivers on a standby basis is the most efficient way of meeting the *ad hoc* demands that arise outside normal working hours and at weekends. Cost comparisons have shown that in the majority of cases where public transport is not available, the use of reliable taxi services is more economical, the charges being 25 per cent or more below the costs per journey when hospital transport is used.

6. Authorising the use of taxis, especially during normal working hours, should be the responsibility of the Transport Officer, as the officer in the best position to know whether the demand can be met by the use of the Committee's own vehicles.

7. Although there may be advantages in allocating a vehicle to a department for its sole use, generally studies have shown that such vehicles are badly utilised. They often stand idle for a great proportion of their time and are often under loaded. There is also a tendency to use them merely because they are available which often leads to a duplication of journeys.

8. With centralised service departments, there is always a need for regular, well planned distribution around the Group to deliver such things as stores, laundry, sterile supplies etc. Advantage should be taken of this service to transport the numerous other items which need to be conveyed between hospitals, eg. Pathology specimens, X-ray films, case notes etc. The use of properly designed containers may extend the use of some vehicles to enable a greater range of items to be conveyed. A copy of the time-table showing regular delivery times should be available

in all departments that may need to use the service.

9. Studies have produced evidence which showed that too little attention has been paid to the need to turn transport round quickly at call points. The time spent in turn-round has been found to be generally about 35 per cent of the hours spent away from the base, with a percentage range between 11.6 per cent and 59.8 per cent. Clearly, any unnecessary time spent in turn-round will diminish the amount of useful work able to be carried out by the transport service. The use of trailers may help to reduce turn-round time.

10. Administrative arrangements for maintenance should be the responsibility of the Transport Officer who would be expected to seek technical advice from Group Engineers. Planned maintenance should be arranged in accordance with manufacturers' instructions. Daily checking of oil, water and fuel levels should be the responsibility of drivers who should also be expected to keep the vehicles clean. It is generally considerably more costly to employ a mechanic to carry out routine maintenance and repair work, although it may be economic if there is vehicle/mechanic ratio of 12:1 or more. In some cases, vehicle maintenance by directly employed staff has cost twice as much as in groups employing firms of motor engineers.

11. The duties of the Transport Officer should also include:

- (1) collaboration and advice to the Supplies Department in arranging contracts for taxis, petrol and maintenance;
- (2) initiating and pressing claims against suppliers and manufacturers of vehicles for defects arising during the guarantee period.

12. Arrangements should exist for the control of vehicle keys to prevent unauthorised use. Control can also be improved by proper garaging facilities which also help to reduce deterioration of the body-work of vehicles.

13. In order to provide adequate control and cost information, transport service records should include:

- (1) standard log books containing information about the purchase of the vehicle and summarised history of its performance and maintenance;
- (2) vehicle journey sheets containing the detailed information about journeys.

Abstract of Efficiency Studies No 120 describes a study of a group transport service and includes copies of vehicle log and journey sheets and log book sheets.

14. The opportunity to effect overall savings by the use of radio telephone facilities in vehicles is likely to be affected by the:

- (1) area to be covered;
- (2) number of vehicles fitted with radio telephone;
- (3) number of urgent calls between base and the vehicles;
- (4) need to install remote control equipment and to have G.P.O. private lines.

A study of a radio-telephone system involving radio in only one vehicle and using remote control equipment was found to cost about £180 per annum to

operate. The value of savings was found to be about £27 per annum of which only £5 was likely to be collectable. However, other studies have suggested, with a larger fleet and using shared transmitting facilities without remote control, perhaps using the local ambulance service facilities, that the installation of a radio-telephone system can be justified on economic grounds.

Vehicles

15. Studies have shown that an assessment of the existing fleet of vehicles can generally best be carried out under 3 headings:

- (1) whether the organisation is the most suitable to meet transport needs. Consideration should be given to the allocation and basing of vehicles, the programming of runs and the control of operations;
- (2) whether the number of vehicles in use is reasonable. If the average mileage calculated over the whole range of vehicles is substantially less than 300 miles per vehicle per week, it is likely that too many vehicles are being used;
- (3) whether the vehicles in use are of the right type (see Section 6 for the description of type of vehicle required by the Linen Services) and are reasonably well loaded. Many hospital vehicles are of the wrong kind generally being too big and carrying a high proportion of small or medium sized loads. This has been particularly noticeable in the case of vehicles allocated to Engineers' Departments. Engineers' Departments should consider hiring when the need for a particularly large vehicle arises infrequently.

16. With the exception of larger passenger carrying vehicles, maintenance costs start to increase significantly during the third year of life of vehicles covering more than 6,000 miles per annum. Appendix N of Hospital O & M Service Report No 7 illustrates the rate of increase of maintenance costs for different types of vehicles.

17. The advantages of planned replacement programmes are that they:

- (1) ensure that vehicles do not become uneconomic;
- (2) can take into account changes in transport needs;
- (3) enable replacement recommendation to be made well in advance of actual need and, consequently, permit a thorough study to be made of the possible choices. Ministry of Defence contracts enable authorities to buy some vehicles at a lower cost;
- (4) they provide information from which the Treasurer can compile estimates.

Small vehicles i.e. under 15 cwt which are more than 5 years old or with mileages over 50,000, and larger vehicles over 7 years old or with mileages in excess of 70,000 are unlikely to be economic to run.

18. With passenger carrying vehicles, the size should be related to the maximum number that is most frequently carried. For example, it is not economical to provide a 30 seater coach when there are only a small number of occasions when the passengers number more than 20. It is likely that a coach would

need to have an annual mileage of about 12,500 a year to be an economic proposition.

19. In general hospitals, apart from early morning and evening journeys to collect and return staff and for the transport of student nurses between the PTS and the hospital, there is little or no further demand for the use of a coach. An alternative worth considering is the employment of two smaller vehicles which can be used for the transport of both passengers and goods.

20. It is only in special circumstances that a saloon car will need to be used. Often it is more economical to hire a car or taxi than to keep a saloon car on the strength of the transport fleet. There is a tendency, once a car is purchased, to use the vehicle for work which could be done by other vehicles at less expense.

21. Although petrol engined vehicles are most suitable for most of the transport work, in some circumstances other types of vehicles may be more appropriate. Appendix G of Hospital O & M Service Report No 7 describes their merits and indicates the nature of the work for which they may be appropriate.

22. A more efficient use of vehicles can be obtained by using vehicles which are suitable for carrying passengers and/or goods and should result in a smaller transport fleet being sufficient to meet the needs. Estate type vehicles may be purchased by hospital authorities free of purchase tax through contracts placed by the Ministry of Defence. These vehicles can then be sold after 12 months leaving the authority with a minimal depreciation cost, and, unless the mileage has exceeded 12,000, with all necessary replacement parts covered under the guarantee.

23. The need to keep a vehicle as a standby for others can be avoided by having a properly planned programme of regular maintenance. There is a danger that unnecessary, unprogrammed and uncontrolled journeys may be made in standby vehicles

as there is a tendency to use them merely because they are available.

Staff

24. Detailed studies have shown that if the mileage covered by the entire driving staff averages substantially less than 9 miles per hour of duty, an investigation should be made into their utilisation. The total annual mileage should be divided by the total annual hours of driving staff.

25. The employment of porter/drivers has, with certain exceptions largely connected with peak periods of demand, been found to be inefficient. There has been a tendency to use two or more porter/drivers where one full-time driver would suffice, mainly because of the difficulties of fitting portering work requirements to porter/drivers' duties where driving has priority.

26. Some overtime may be unavoidable but care must be taken to ensure that the hours worked do not exceed the limits fixed by Part VI of the Road Transport Act 1968.

Selective Bibliography

27. The following documents contain information about hospital transport arrangements:

- Hospital O & M Service Reports: London. HMSO
 No 7 *Planning and Control of Hospital External Transport.*
 Abstracts of Efficiency Studies in the Hospital Service: London. HMSO
 No 7 *Group Transport System.*
 No 52 *Group Transport System.*
 No 66 *Hospital External Transport - drivers' rota.*
 No 98 *Transport.*
 No 120 *Standardisation of Vehicle Records.*

Scope

1. This section provides guidance about the Supplies arrangements in a hospital or a hospital group. For this purpose the term is intended to include, in addition to the purchasing of goods and materials for stock and for immediate use, the arrangements for the issue and distribution of stock items, clean linen and sterile supplies and the collection and disposal, if necessary, of soiled or waste products. A separate section exists for Stores.

Basic Considerations

2. The Hunt Committee concluded that the essential features of a supply organisation for the hospital service are that it:

- (1) should provide, efficiently and economically, an adequate service for supplies and equipment to meet the needs of the hospital service;
- (2) must conform to Government economic and financial policy;
- (3) must be alert and receptive to new developments in the field of supplies and equipment to be able to arrange trials and to sponsor further development of promising ideas;
- (4) must command the confidence of the hospital service.

3. As recommended in the Hunt Committee report, a Hospital Service Supply Branch has been set up in the Department's Supply Division. The Branch is responsible for the preparation of national specifications, for issuing guidance on 'best buys' and for placing central contracts. An advisory body has been set up to enable the central authorities to keep closely in touch with users' views.

4. Outside the central authority, the responsibility for the organisation of the supply service rests with Regional Hospital Boards. Each Regional Hospital Board has appointed a Regional Supplies Committee and a Regional Supplies Officer. Boards of Governors are co-operating with Regional Hospital Boards in the preparation and running of supply schemes.

5. The Hunt Committee also recommended that Area Supply Units should be created. Their functions to include the preparation of specifications in so far as these have not been determined centrally,

selection of suppliers, negotiation of contracts over a field to be defined from time to time in consultation with the central and regional authorities.

6. Area Supply Units might, in appropriate circumstances, decide on bulk purchase for their areas with distribution from central stores of some products. They would advise the hospital groups about developments in stock control and distribution methods and exercise general responsibility for supply arrangements in their areas.

7. The Hunt Committee envisaged that most of the actual purchasing of supplies would be undertaken by Hospital Management Committees or Boards of Governors under central, regional or area contracts. Supply functions at group level would include the preparation of estimates of supply requirements, ordering supplies under central or regional contracts, the administration of group and hospital stores including efficient stock control and maintenance of a close watch upon levels of consumption, responsibility for the maintenance, condemnation and regular replacement of stores, furnishings and equipment and the disposal of waste material and surplus or obsolete equipment.

Working Methods

8. Selection procedures for materials and equipment should normally take account of the following considerations:

- (1) a detailed up-to-date specification should exist for each item in the Supplies Department purchasing catalogue. The specification should be carefully devised and should not contain any unnecessary complication. It should be reviewed periodically by the users and by the purchasing officer.
- (2) the suitability of goods purchased against the specification should be kept under review to ensure that they have not been superseded by new and improved products.
- (3) there should be a wide measure of standardisation of hospital materials and equipment both within and between groups particularly in such categories as bedding, linen, staff uniforms, crockery and glassware. Working Party reports on the standardisation of hospital materials and

equipment provide guidance about specifications of items which are suitable for rationalisation in this way.

9. Standardisation of specifications is likely to result in a reduction in administrative costs and generally avoids the dissipation of technical resources. Detailed consultations should take place between user departments, technical experts and supply staff in order to determine standards and specifications. This procedure not only enables the user requirement to be identified in a technically satisfactory way, but also ensures the item's more ready acceptance by the user departments concerned. Specifications need to be reviewed regularly and revised to take account of new techniques or materials which become available and of changes in user requirements.

10. It has sometimes been claimed by heads of departments that they should purchase the specialist items used in their departments since only they have the technical knowledge needed to choose the best articles and to ensure that the quality of goods received is satisfactory. Successful purchasing, however, demands not only technical knowledge of the commodity being bought but also skill and experience in the techniques of contracting and purchasing. The Hunt Committee came to the conclusion that the user's part in the purchasing functions should be to provide expert advice about suitable specifications, sources of supply, quality control, etc.

11. Standing Orders should specify the conditions under which a full tendering procedure should be operated, and under which invitations to tender should be either advertised in the national press, the local press or sent to firms on selected lists. Selected lists should be amended regularly by the addition of suitable firms and by the deletion of firms whose tenders are consistently unsuitable. The renewal of contracts for each class of supplies should as far as possible be staggered throughout the year to provide an even flow of work.

12. It is undesirable that a Committee should be faced with lengthy lists of items of expenditure for authorisation. A maximum figure should be approved by the Committee below which expenditure may be incurred by officers for particular items with the qualification that the Committee should always be concerned where matters of policy are involved.

13. It is important to ensure that an adequate degree of quality control of purchases exists. Where necessary technically qualified staff should be available to undertake this work. Better use can be made of technical staff resources if there is a small number of larger scale contracts rather than a large number of smaller contracts: this arrangement will also enable staff to be concentrated at the centre. Nevertheless, there is a clear need at hospital level for inspection of goods and for solving local problems on the spot. The Hunt Committee recommended that the central authority should be able to command the services of a professional and technical section adequately staffed to secure quality control at the point of manufacture and to ensure that there is a proper system of test quality control at the periphery.

14. The quality of the buying policy decisions will materially affect the cost of operating a store. Basic

to these decisions are the following considerations:

(1) should a particular item be held in stock or should it be bought as and when it is required. Unless it must be readily available, an item should only be regarded as a stock item when a consistent and worthwhile demand exists;

(2) when should orders be placed for stock items. The factors which influence the decision when to place an order are the rate of issue from stores, and the time required to obtain new supplies, i.e. the lead time. From this information, plus a safety margin it is possible to calculate the reorder level. A typical reorder level table is contained in 'Optimum Purchasing Tables' an Oxford Regional Hospital Board Operational Research Unit publication;

(3) how much to order, including consideration of possible discounts for bulk orders. The economic order quantity will be that which incurs the minimum total cost of holding stock and of replenishing stock.

Various Operational Research techniques exist which can assist stock controllers to arrive at such decisions. Prominent among these are Economic Order Quantity and Coverage Analysis. The Oxford Regional Hospital Board Operational Research Unit has published booklets which explain the bases of the techniques and demonstrate their practical application. The NCB Operational Research Executive is at present studying the possible application of stock control in the National Health Service in collaboration with the Department of Health and Social Security. A report will be published in due course.

15. The achieved storage cost is one method of measuring the efficiency of the stock controller, another is the frequency of turnover of stocks. In industry and nationalised undertakings, a stock controller would be expected to turn over his stock at least four times and possibly five or six times each year.

16. An important factor in a purchasing decision is often the offer of discounts linked to the purchase of specific quantities. The problem is whether the savings obtained by buying the larger quantities are greater than the cost of holding the additional stock. The following table, which sets out the decision levels based on a 20 per cent holding cost, is compiled from a typical Operational Research model.

Discount %	Break even number of months
$\frac{1}{2}$	0.6
1	1.2
$1\frac{1}{2}$	1.8
2	2.4
$2\frac{1}{2}$	3.0
3	3.6
4	4.8
5	6.0
6	7.2
7	8.4
$7\frac{1}{2}$	9.0
8	9.6
9	10.8
10	12.0
20	24.0

For example, the transaction will be worthwhile if the purchase price is reduced by 5 per cent and this involves acceptance of less than 6 months additional stock.

17. If economical stock holding is to be achieved, control must exist over the range of items which are held in stock. In addition to the items which must be carried in stock because of their essential nature, the remainder will need to be examined from time to time, perhaps annually, to ensure that their continued stocking is justified. Items which have not moved at all during the period or which have moved slowly and erratically should be reconsidered. When additions to the range are requested, the requisition should be accompanied by a clear statement of their purpose and which should demonstrate why the need cannot be met by an existing stock item. It should also be shown that there will be a consistent and worthwhile demand for the proposed addition.

18. The keeping of control records for stores accounting purposes can be time consuming and, particularly in the case of low value items, sometimes disproportionate to its value. Abstract of Efficiency Studies No 116 describes a study which took place at a London Teaching Hospital as a result of which stores accounting was discontinued in respect of 356 out of a total of 593 stock items in the Cleaning Materials, Medical and Surgical, Hardware and Crockery, and Printing and Stationery categories. There has been a considerable improvement in the use of staff time without any real loss of control. An extension to the scheme to Bedding and Linen, Patients' Clothing and Staff Uniforms took place later and as a result, a further 67 items were removed from stock records.

19. The examination of the considerable volume of goods, information and equipment which is transported throughout the hospital requires a detailed study and this needs to be done before a fully co-ordinated comprehensive service can be designed. Without such a study, solutions which are sensible in themselves may be inappropriate in a wider context.

20. The frequency and type of issue of stock items directly affect the amount of labour involved in the distribution of stock items to wards and departments. Less frequent issues have been introduced in some hospitals, for example, fresh milk once per day and dry provisions at weekly intervals. Cleaning Materials may be issued at fortnightly or monthly intervals. Peaks of work can be avoided by arranging for deliveries to be spread over a number of days.

21. It is by no means certain that the traditional requisition system is the most effective way of initiating issues of stores. There is much to be said for the alternatives (ie. standard packs and topping up) and provided that these are properly planned a great deal of clerical work and time is saved, not only in the Stores Department but also in the user departments. These systems are likely to relieve the nursing and technical staff of clerical work and are worth considering especially where they ease the work of the Stores Department whilst still maintaining an effective control of consumption. The adoption of standard pack issues may have a substantial effect on the work within Stores Departments since

it will normally be possible to make up standard packs in off-peak periods. Abstract of Efficiency Study No 40 describes a study at a London Teaching Hospital which resulted in the introduction of a standard pack issue system.

22. The efficient and economical working of the store requires that the incidence of demands should be regulated to produce as even a flow of work as possible. This calls for a programme for stores issues to each hospital or department. The various categories of stores should be issued on prescribed dates, not only to facilitate storekeeping but also to reduce the work of maintaining stock records.

23. Whilst the main function in the use of resources is usually under the direction of the user or purchaser, nevertheless the Supplies Department has a responsibility to ensure that issues and purchases are adequately controlled and that the rates of consumption are reasonable. The following action can contribute to these aims:

- (1) in a requisition system, all requisitions for supplies should be authorised by a senior officer;
- (2) the use of stores issue summaries can facilitate the examination of issued quantities. Their use can also speed up the evaluation of issues by the Treasurer's Department thus enabling responsible officers to receive details of their expenditure on stores issues more promptly;
- (3) condemning should be done by a sub-committee or a senior officer. Articles condemned should be treated so as to make their resubmission impossible.

24. Studies of inventory arrangements have shown that often great efforts have been made to compile inventories but maintenance and checking have tended to fall behind. Some Groups have tried to do too much at once with the result that much of what has been done is unreliable. Improvements are generally possible in the following directions:

- (1) discretionary powers delegated by the Department to Hospital Authorities with regard to the detailed content of inventories are not always used. The work of checking inventories can be increased unnecessarily if they include a high proportion of small items of short life and insignificant value such as crockery, glassware, minor instruments, cutlery, etc. Items with a comparatively short potential life should be regarded as 'consumable' and excluded from the inventory control. Valuable, attractive and portable items must be recorded and checked frequently;
- (2) the purpose and use of inventories are not always clearly understood by hospital staff and, in consequence, are regarded as a nuisance;
- (3) there is sometimes lack of definition of responsibility for the various phases of inventory work, largely due to failure to distinguish between responsibility for the articles appearing on the inventory and for the inventory itself;
- (4) there is a need for firm direction and supervision of the inventory system at Group Office level if full co-operation between all officers concerned is to be obtained;
- (5) checks of inventory items should be carried out regularly and the check of each item should be carried out as far as possible simultaneously

throughout the hospital to prevent transfers during the course of the check.

25. A review of the present system of control of inventory items has recently been completed by the Department of Health and Social Security and revised guidance will be issued in due course.

26. In addition to the purchasing function, the Supplies Department will from time to time, be asked to dispose of materials and equipment. It is likely that the range of items for disposal will include the following:

- (1) obsolete or condemned furniture and equipment;
- (2) obsolete stores;
- (3) seasonal surpluses of farm or garden produce;
- (4) used hypo solution;
- (5) used X-ray films;
- (6) swill;
- (7) other scrap and waste materials.

27. Whilst there is a need to demonstrate that value for money is being obtained when disposals take place, the relatively small sums of money involved make it necessary to retain a sense of proportion so that the expenditure incurred in arranging for the sale does not exceed the income produced.

Some suggested methods of disposal are:

<i>Vehicles</i>	at Government vehicle or local auction.
<i>X-ray films</i>	by sale by tender in or out of envelopes. If sold out of the envelopes or files, the cost of labour involved in their removal must be appreciated.
<i>Silver Waste</i>	by sale by tender.
<i>Swill</i>	by sale by tender.
<i>Farm Produce</i>	by sale to other hospital authorities, if possible.
<i>Occupational Therapy Products</i>	by sale to other hospitals or to local authorities. Alternatively by sale to hospital staff or to voluntary and commercial organisations.
<i>Scrap Metal</i>	by sale by tender to approved scrap metal merchants.
<i>Rags and Paper</i>	by sale by tender, if possible. Segregation of materials is desirable.
<i>Obsolete and Condemned Furniture and Equipment</i>	by sale by local Auctioneers, if possible. Alternatively by direct sale to staff. Old medical equipment may be useful to voluntary hospitals or homes or missionary societies.
<i>Surplus Stores</i>	by sale to other hospital or local authorities; if this is not possible, by sale by tender.

28. Disposal of refuse can take up a considerable amount of portering time and may require as many as 70-75 hours per week in larger hospitals. Movement of dirty and infected materials within the hospital should be restricted in the interests of hygiene and to reduce the risk of cross infection. Such devices as chutes, hoists, incinerators and waste disposal machines have been installed in order to do this and also to minimise handling and transport. There is as yet no full agreement of the value of these

devices in relation to their cost or effectiveness and there may be difficulties in installing them in or on existing structures. Abstract of Efficiency Studies No 19 describes the installation of chutes for refuse and used linen in an existing hospital.

29. The collection, transportation and disposal of refuse, etc will be simplified if:

- (1) sufficient receptacles are provided to enable the different types of refuse to be kept separate - swill, infected materials, paper and used or broken containers;
- (2) refuse is collected at least twice per day after peak time of accumulation;
- (3) bins, etc are not marked with ward names which complicates replacement arrangements;
- (4) sufficient spare bins are provided to enable an empty for full exchange to take place;
- (5) disposable paper sacks or bin linings are used which eliminate the need for cleaning and exchange of bins. They are lighter to handle, quieter in use and provide less risk of cross infection but have the disadvantages of being a greater fire risk and possibly being more expensive. Abstract of Efficiency Studies No 32 describes the circumstances which led to the introduction of paper sacks for refuse disposal in a hospital of 700 beds;
- (6) large refuse hoppers are used where appropriate. These can be hired from some local authorities and reduce handling of refuse.

30. So far as possible 'dirty' materials should follow different routes from clean materials. They should be kept away from areas where hygiene is of the utmost importance and also from the main hospital traffic routes.

Staff

31. Regional Supplies Officers are in the process of determining the most appropriate organisation for their region and it is only after this has been done and the organisations have been in operation for some time that information will be available from which ratios can be calculated. The Hunt Committee, however, concluded that it would be appropriate for the services of a supplies officer to be available for a number of groups, envisaging the disappearance of the designated supplies officer post at Group level.

32. The Hunt Committee considered that the area supplies officer might have three section heads (one of whom might be his deputy) responsible respectively, for medical supplies, non-medical items and provisions. He would not normally need professionally or technically qualified staff in his unit since he could call on technical expertise from the central and regional authorities. It might, however, be desirable to employ some trade specialists if it were decided to develop, for example, Area Butchery Departments.

Selective Bibliography

33. The following publications contain information about supplies arrangements in hospitals:

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 40 *Stores Issues.*

No 45 *Stores Issues.*

No 89 *Planning of New Group Central Store.*

No 116 *Control of Low Cost Stores Items.*

HM(66)69 *Hospital Supplies Organisation - Report of Hunt Committee*

HM(67)95 *Hospital Supplies Organisation.*

Oxford Regional Hospital Board-O. R. Unit Reports:

Oxford RHB

No 4 *Optimum Purchasing Policy.*

No 10 *Coverage Analysis.*

N.C.B. Operational Research Executive Report - *Supplies within a New District General Hospital* - Issued by DHSS.

In addition, the following reports are being prepared for publication:

N.C.B. Operational Research Executive Report - *Centralisation of Stores.*

N.C.B. Operational Research Executive Report - *Stock Control Systems in Hospital Stores.*

Scope

1. The present study is concerned with the supply of Central District Supply organisations in a hospital or a group of hospitals. It will be in work under way within the department. The study includes provision for the distribution of goods to the stores, provision for the collection of goods and the storage of goods in the stores. The study will also include the study of the supply of goods to the stores and the study of the supply of goods to the stores. The study will also include the study of the supply of goods to the stores and the study of the supply of goods to the stores.

General Considerations

2. The following considerations apply to the study of a Central District Supply Organisation.

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13. The following considerations apply to the study of a Central District Supply Organisation.

14. The following considerations apply to the study of a Central District Supply Organisation.

The first of these is the fact that the
 organization has a long history of
 service to the community. It has
 been active in many areas of
 social and economic development
 for many years.

The second point is that the
 organization has a strong financial
 base. It has a large number of
 donors and a steady stream of
 income from its various activities.

The third point is that the
 organization has a high level of
 efficiency. It has a well-organized
 staff and a clear system of
 accountability.

The fourth point is that the
 organization has a strong reputation
 in the community. It is widely
 respected and its work is highly
 valued.

The fifth point is that the
 organization has a strong future
 outlook. It has a clear vision of
 its goals and a solid plan for
 achieving them.

The sixth point is that the
 organization has a strong
 leadership. It has a clear
 direction and a strong sense of
 purpose.

The seventh point is that the
 organization has a strong
 commitment to its values. It is
 dedicated to the principles of
 honesty, integrity, and service.

The eighth point is that the
 organization has a strong
 network of supporters. It has a
 wide range of friends and
 allies who are committed to its
 mission.

The ninth point is that the
 organization has a strong
 record of achievement. It has
 accomplished many important
 projects and has made a significant
 impact on the community.

The tenth point is that the
 organization has a strong
 sense of responsibility. It is
 committed to the highest standards
 of ethical conduct and to the
 well-being of the community.

The eleventh point is that the
 organization has a strong
 sense of identity. It has a clear
 mission statement and a strong
 brand that is recognized and
 respected.

Staff

The staff of the organization
 consists of a number of highly
 qualified individuals who are
 dedicated to the organization's
 mission. They are committed to
 excellence in their work and to
 the highest standards of ethical
 conduct.

The staff is organized into
 several departments, each of
 which is headed by a senior
 manager. This structure allows
 for efficient coordination and
 communication across the
 organization.

The staff is also committed to
 ongoing professional development
 and to the highest standards of
 ethical conduct. They are
 dedicated to the highest
 standards of service and to the
 well-being of the community.

Scope

1. This section provides guidance about the organisation of Central Sterile Supply arrangements in a hospital or a group of hospitals. In addition to work carried out within the department, the section includes guidance on the distribution of packs to the users. References to the collection of linen and used dressings etc will be included in the sections for the Porter Services (No 15); the laundering of linen in the section for the Linen Services (No 6); and the purchase and custody of equipment, materials etc before issue to the Central Sterile Supply Department in the sections relating to Supplies (No 8) and Stores (No 22).

General Considerations

2. The Collingwood Committee report defined the aims of a CSSD as follows:

'To provide, for all departments of the hospital served - with possible specified and limited exceptions - reliably sterilised articles, including disposables when and where required, as economically as possible and under conditions which can be properly controlled'.

The report also noted that in the long term the CSSD requirements may be changed considerably either by increased use of disposables or greater commercial supply. These trends may become increasingly significant to an extent that CSSDs may evolve largely into specialised sections within the main hospital storage and issue departments, although facilities for sterilisation of instruments for operating theatres would still be needed. Regional Hospital Boards and Boards of Governors were asked to bear these possibilities in mind and to aim at the necessary flexibility when planning new CSSD's.

3. The best way to ensure that standards of sterility are as high as possible is to centralise the work in a separate, highly specialised department serving all hospital departments with the possible exception of Operating, Accident and Emergency and Out-Patient Departments. There should be a properly qualified superintendent in charge of the department with administrative ability and adequate technical knowledge of the engineering and biological aspects of CSSD work.

4. The Collingwood Report went on to say that Central Sterile Supply is most effective when it provides a limited basic range of articles for the greatest possible number of uses. Arrangements should therefore exist to ensure that the product range is controlled to prevent any unnecessary extension of the range. The possibility of purchasing a standard range of dressing packs and materials from trade sources should be kept under review and nearby Industrial Therapy Units may be able to carry out some of the simpler packing procedures on behalf of the department.

5. Sterile disposable equipment and materials are becoming available in increasing quantities and their use should be carefully considered not only because of the direct costs but also for clinical reasons and their ability to reduce infection.

6. Generally, a CSSD should serve at least 2,000 general beds or its equivalent in services that require sterile products, and much larger numbers may be served effectively. There should be liaison between Regional Hospital Boards and Boards of Governors to discuss the provision of sterile supplies and to decide where CSSD's are to be located. The appointment of Advisory Committees at Regional level to advise on all aspects of CSSD's and of User Committees at CSSD level are likely to contribute to the effective and economic fulfilment of users' needs. The User Committee's responsibilities should include:

- (1) deciding the general policy of the department;
- (2) ensuring that adequate liaison and co-operation exists;
- (3) determining the standard of service to be given;
- (4) controlling the range of packs;
- (5) reviewing the possible use of disposable substitutes;
- (6) considering whether some packs should be provided by commercial sources;
- (7) considering equipment losses.

Working Methods

7. The Steering Committee on the Standardisation of Supplies from Central Sterile Supply Departments, set up following the report of the Collingwood Committee, put forward in an Interim Report

issued in May 1970 proposals for model packs and procedures to be the subject of trials by hospital authorities.

8. The Collingwood Report noted that Central Sterile Supply is most effective when it provides a limited basic range of articles for the greatest possible number of uses. A review should be made of the items processed by the CSSD to assess which can be modified to meet a wider range of needs and whether any can be dispensed with altogether. Once the basic need is catered for, any additional needs can be met by providing supplementary packs containing particular dressings or instruments. In this way, reductions can be made in unit cost.

9. In order that the most economical method of providing packs can be established, cost comparisons should take place from time to time, between packs available from commercial sources and those prepared in the CSSD. If costing of the full range of packs is not possible, cost comparisons should at least take place for the range of simple packs since it is for these packs that comparisons are likely to be most worthwhile. It may also be worth exploring the possibility of arranging for some simple packing work to be undertaken by local Industrial Therapy Units.

10. The advantages and disadvantages of using disposables should be fully taken into account when considering the replacement of traditional materials by their disposable equivalents. Disposables which can be recommended on clinical grounds are those used in direct contact with the patient or which are difficult to sterilise effectively. Others would reduce the infection risk, save staff time and give value for money. Lists of each type appear in Appendices of the Collingwood report.

11. Long production runs can achieve economies in unit costs but there is a danger that if they are too long, the value of capital tied up in stock will be high and that an excessive demand for storage space will be created. Daily production runs may be appropriate for high usage range of packs and weekly runs for the small usage range.

12. Packing procedures should be devised for each pack and should specify:

- (1) the number of packs to be produced at each production run;
- (2) whether packs should be produced by individual packers or on a production line basis;
- (3) the quantities of materials required and their arrangement on the work bench;
- (4) the sequence of the packing operations;
- (5) whether the work should be carried out by skilled or less qualified staff.

Adequate supervision should exist to ensure that packing procedures are followed.

13. It is likely that there will be advantages in organising the packing work in two workflows:

- (1) the less complex packs with a high throughput;
- (2) maternity and theatre packs etc with a lower throughput.

At least, 15 square feet of packing space on each work bench is likely to be required for the assembly of packs in the first category and, in addition, some storage space above the bench will be required. For

those in the second category, it is likely that about 30 square feet of packing space with some shelf storage, will be required on each work bench. Work benches should be so designed to keep packing movements to a minimum, with storage of materials either on shelves or above the bench within easy reach of the packer (see Illustration 6—'Central Sterile Supply—Principles and Practice'). Depending upon the volume of production and the shape of the department, a belt conveyor may be useful to move packs away from the packing stations.

14. Unpacking, inspecting and refolding linen in the CSSD involves duplication of some of the work already carried out in the laundry. To prevent this duplication of work and to avoid the need to return rejected linen to the laundry, it may be worthwhile setting up a special inspection and folding procedure in the laundry which meets the linen needs of the CSSD.

15. Sufficient quantities of materials and equipment must be available before packing commences since shortages not only reduce the length of production runs but also cause time to be lost and extra journeys for supplies. The use of mobile racks should be considered for the movement of materials and equipment between the stores wash-up and make-up areas since their use can reduce considerably the amount of handling.

16. There is likely to be a need for simple devices to enable measuring and cutting of lengths of material to take place easily and quickly. Measuring devices which are built into or inscribed on the workbench, and clamps which permit the material to be wound around them and then cut, have been found to be useful.

17. The identification of packs by name and date of production can take up a considerable amount of staff time. Employees who rubber stamp these details on bags can become very proficient and produce large quantities relatively quickly but the stamping usually involves at least two runs before both name and date are printed. If a printing machine is available, it may be worthwhile considering its use for the over printing of a limited range of bags. Over printing bags for the whole range may however produce a considerable demand for storage space.

18. Significant reductions in pack handling can be made if the same containers are used for workbench loading, sterilising, storage and possibly for distribution and collection. Since empty containers can take up a great deal of space, an ability to nest when empty is desirable in order to keep container storage space to a minimum.

19. It may be worthwhile experimenting with different sizes of container in order to achieve a higher degree of autoclave utilisation. Different arrangement of packs within the autoclave container may also contribute to increased utilisation.

20. Washing and drying rubber suction tubing and catheters is difficult and can take up significant amounts of staff time. Consideration should be given to the use of disposable substitutes in view of the doubts expressed about the effectiveness of washing procedures as well as the Collingwood Report's recommendations.

21. Hypodermic syringes were listed in Appendix A of the Collingwood Report among the items which on clinical grounds should be used in disposable form. The use of disposable syringes is likely to be more economic where the replacement rate of reusable syringes is more than 2 per cent of turnover.

22. The production of sterile distilled water for non-intravenous use in a CSSD may involve the utilisation of facilities for only a minor part of the day. Where this is so, it is worthwhile considering the centralisation of all sterile fluid production.

23. The main systems of supply of centrally sterilised items to wards and departments are:

- (1) requisition or indent, which requires some clerical work at ward and departmental level;
- (2) container exchange, which requires additional quantities of supplies in the 'pipe line', increases in the amount of work and storage space for unpacking, cleaning and repacking containers. The speed of replenishment at the user point is usually increased and standardisation of ward storage, if this is required, is achieved;
- (3) topping up avoids the clerical work in requisitioning and the extra work and space needed for container exchange. The use of dispensers can facilitate topping up procedures and should ensure that packs are used in the correct sequence.

24. The choice of system will ultimately be dependent on local circumstances. A combination of systems may be appropriate, such as topping up for soft packs and an exchange system for hard packs.

25. Before a vehicle is allocated on a full time basis to the CSSD to transport sterile and used supplies between the department and hospitals, it should be demonstrated that it will be reasonably well used. The ratios of vehicle use and driving set out in the section about Transport may be of use as a guide to determine whether the utilisation is at an acceptable level. Where the volume of traffic does not justify a specially allocated vehicle the use of special containers or compartments within a group transport vehicle may be a possible solution.

Staff

26. Staffing ratios have not yet been devised for CSSD staff. Some of the factors which are likely to affect the number of staff required are the:

- (1) number of packs produced;
- (2) types of pack produced;
- (3) range of disposables in use;
- (4) amount of distribution work carried out by the staff of the department.

27. It is not yet possible to assess the number of porters required in a CSSD by means of a simple comparison with some hospital factor for example, the number of beds or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works as far as possible to a defined programme (2) whether the tasks in this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks

combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere and (3) whether in the light of the work to be done, some or all could be better done by pool porters.

28. The Collingwood report recommended that the CSSD Superintendent should be properly qualified with administrative ability and adequate technical knowledge of the engineering and biological aspects of CSSD work to ensure, for instance, that the performance tests of sterilisers are carried out regularly and effectively. He must also be able to manage staff and to establish and maintain good relationships and continuous contact with the doctors and nurses for whose needs the CSSD will cater.

29. There is a need to retain a degree of flexibility in the use of CSSD staff who should not become too specialist but be able to carry out a range of duties. The employment of an evening shift of at least four hours is likely to be an economic way of increasing production enabling greater use to be made of plant, space and equipment.

Materials

30. A check on the quality and quantity of items purchased from suppliers is advisable. There is some evidence to suggest that deficiencies of some materials can be of the order of 10 per cent, and a realistic checking system should be devised and instituted. The frequency and type of check must be decided with care to avoid the cost of checking exceeding its value.

Equipment

31. An effective programme of preventive maintenance should take place to minimise the possibility of machine breakdown using if possible directly employed staff trained in the performance requirements of the machines. If trained staff are not available there should be maintenance contracts with the manufacturers. The programme should be arranged to cause the minimum amount of disruption to CSSD processing. It is useful if there is a separate entrance to the autoclave for maintenance purposes.

Accommodation

32. Work should proceed using simple production flow methods through the department in a logical sequence following the most direct route. The layout of equipment should follow the sequence of operations but must be flexible enough to cope with changes in workload. Machinery, equipment and work benches should be sited to allow the free passage of loaded trolleys or mobile racks which have important parts to play in the movement of materials and equipment both within and between the different sections of the CSSD. Conveyors are also likely to contribute to the solution of handling problems but some care should be exercised in their selection in order to achieve the correct scale of provision.

33. Good lighting is important to the efficiency of the department generally and in areas such as instrument and needle sharpening sections in particular. Precautions should be taken to prevent excessive solar heat gain particularly in the heat producing areas. The optimum air temperature is 18.3°C (65°F) and the comfort zone (over which, not more than one person in seven complains of actual discomfort) ranges from 15.6 to 20°C (60 to 68°F).

Selective Bibliography

34. The following documents contain information about Central Sterile Supplies arrangements: Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 58 *Central Syringe Service - cost of processing needles.*

No 59 *Central Syringe Service - distribution system.*

No 87 *Introduction of Central Sterilising Arrangements.*

No 130 *Costing and requisitioning of packs and instruments.*

No 131 *Design of Dispensing Cabinet.*

Hospital Building Notes: London. HMSO

No 13 *Central Sterile Supply Department.*

Hospital Planning Notes: Edinburgh. HMSO

No 5 *Planning of Sterile Supply Departments.*

HM(67)13 *Central Sterile Supply Departments, Collingwood Report.*

Planning a Regional Sterile Supply Service, Cameron Weymes.

Central Sterile Supply - Principles and Practice, Nuffield Provincial Hospitals Trust.

Interim Report of Steering Committee on Standardisation of Supplies from CSSD's - Department of Health and Social Security.

Printing, Post Room and Common Services

10

Scope

1. This section contains guidance about certain services and activities normally provided on a departmental basis but which benefit from being organised centrally. It also contains references to activities which are too small to merit an individual section but are too important to be excluded.
2. For this purpose, Printing, Post Room and Common Services are defined as:
 - (1) Filing arrangements.
 - (2) Document Copying, Printing and Reproduction Services.
 - (3) Typing and Secretarial Services.
 - (4) Forms design.
 - (5) Communication Services.
 - (6) Post Room arrangements.
 - (7) Accommodation.
3. Other work which could be regarded as Common Services has not been included as it is contained in separate sections eg. Transport (No 7), Portering (No 15).

General Considerations

4. There is evidence from O & M Reports that these services are among those which frequently suffer from a lack of management interest and guidance. The result can be an inadequate service with untrained staff using out-of-date and inappropriate methods and equipment.
5. The effective provision of Common Services largely relies on the nomination of an officer responsible for their management. It is important that he is recognised in his role both by the staff providing the services and the users of the services. It is probably more important to ensure that the services are under effective management than to be too concerned with decisions about the optimum location of them.
6. Within a hospital the overall responsibility for these services will usually rest with the Hospital Secretary. The main requirements are to:
 - (1) provide services on which staff can rely;
 - (2) give adequate publicity to the arrangements and to issue guidance for users;
 - (3) ensure that staff employed to provide the services are adequately trained;
 - (4) ensure that the equipment in use is appropriate.

Filing Arrangements

7. Some files are best kept departmentally eg. medical records, personnel information and correspondence with individual contractors, but others which have a more general use are best filed centrally. The second category will include files relating to matters of policy and correspondence arising from the application of that policy in individual cases eg. the various topics which can arise from a decision to undertake a new building project. Papers of this type should be filed by the subject title and the aim should be to group together papers required to be read together. Responsibility for the management of the filing system should rest in one person who should decide the choice of file titles and the allocation of file numbers.

Document Copying, Printing and Reproduction Arrangements

8. The amount of copying and reproduction work in the hospital service is increasing and often involves multiple copying of the same document. It is necessary to ensure that the most appropriate machines are purchased and also to control the amount and type of work to avoid unnecessary expense. It should be the responsibility of one officer to co-ordinate requirements and to ensure that copying and reproduction of documents are carried out as efficiently as possible. It is likely that if a printing service is set up, it will need to be designed to serve a group or an even larger combination of hospitals. The publication of a users' guide to the range of available facilities, the type of work suitable for various machines and the costs of reproduction is essential.

Typing and Secretarial Services

9. The typing and secretarial services should generally be provided on a hospital rather than on a Group basis. It is preferable to have one officer in each hospital responsible for providing this service in order to:
 - (1) maintain an adequate standard of service and a satisfactory level of output;
 - (2) standardise the typing layout to increase productivity;
 - (3) provide an even distribution of work load;

- (4) organise the training of junior typists to achieve specific goals eg. typing and shorthand speeds and to meet the special typing needs of a hospital department;
- (5) arrange cover for secretaries during periods of absence;
- (6) programme the recruitment needs of the service;
- (7) control the recruitment and expenditure budget on 'agency' typing.

10. The use of dictation machines and audio typing is to be encouraged. A system of Centralised Dictating should only be installed after a detailed survey of the requirements of the hospital has been made.

Forms Design and Procurement

11. The introduction to the book 'The Design of Forms in Government Departments' published by HMSO reads 'Forms and documents used in office work are important aids to the conduct of business. But a particular form or document must be proved to be necessary; it should be clear that the material which it contains cannot be found in an acceptable form elsewhere eg. in a letter or in another form. And a necessary form will only justify itself if it reflects the most efficient means of obtaining, storing or disseminating the needful information.'

12. There should be a Group Officer part of whose job should be to:

- (1) co-ordinate all demands for printing and stationery;
- (2) review existing forms;
- (3) control the creation of new forms;
- (4) give guidance on the design of forms.

Communication Services

13. Communication in the context of this section has been limited to the conveying of information by use of mechanical, electrical, or electronic equipment. Most of this equipment is expensive in itself but to this must be added the cost of installation. It is important therefore that decisions on such equipment are the right ones and that these are made as early as possible during the planning and design stages of hospital building (Hospital Building Note No 1 - Appendix Item 17).

14. It is important to publicise the benefits to be derived from the use of communication equipment. New staff should be made aware of the existence and use of such equipment. The publication of this information in a hospital staff directory which can include information on the distribution of duties will be beneficial.

Post Room Arrangements

15. It is important to ensure that the mail and other written communications in a hospital are circulated in a prompt, efficient and regular manner. It would normally be expected that the service would be organised on the basis of the individual hospital rather than the Group. Care should be taken in the planning and siting of the Post Room. It should normally be near the main entrance for postal deliveries and close to the Head Porter's room for

ease of supervision; this can also provide additional space during periods of heavy deliveries. Larger hospitals may consider it worthwhile providing Post Office facilities such as parcel post, Savings Bank, stamp issuing machines, etc.

16. The Post Room should include sorting facilities or racks and if justified should be provided with the equipment such as franking machines, mail trolleys, opening, folding, inserting and sealing machines. It is likely that the provision of folding, inserting and sealing and opening machines will only be justified when a substantial volume of mail is handled.

Accommodation

17. The detailed space requirements of wards, departments and offices are described in the Building Notes. Demands for additional accommodation in an existing hospital building is a regular feature and, within this context, it is essential to use the available accommodation as effectively as possible. Whilst the use of space within a department will primarily be the responsibility of the department head, a general review of the utilisation of space and the location of departments, including storage space, common use areas and residential accommodation should be undertaken from time to time.

Filing Arrangements

18. Filing arrangements are expected to meet the working needs of an organisation and, when organised and functioning efficiently, contribute significantly to the smooth running of the organisation. The arrangements should normally provide for the:

- (1) production of papers without undue delay;
- (2) use of a classification system which is suitable for the work involved, which is legible and can be easily understood by the staff concerned;
- (3) retention of papers and documents in good condition during their lifespan;
- (4) utilisation of a minimum of staff time and expenditure on equipment;
- (5) systematic removal of items for which the need and interest has lapsed.

19. General guidance about filing arrangements is contained in Hospital O & M Service Report No 5 *The Filing of Management Papers* and reference should be made to this publication when filing arrangements are reviewed in detail. It is probably worthwhile, however, to list the following which are among the important points made in this publication:

- (1) when classifying by subject it is important that:
 - (i) headings should be mutually exclusive, so that one subject cannot be identified under more than one heading;
 - (ii) headings should be precise, and should comprise 2 or 3 words only, wherever possible, so preventing unwieldiness;
 - (iii) cross-references should normally be restricted to synonyms, cross-referencing of other types is usually an indication that existing subject titles need to be reviewed;
- (2) main subject headings may need to be subdivided in order to facilitate references and to

avoid files becoming too bulky, but the number of such sub-divisions should be kept to a minimum. Too great an expansion may indicate that the main subject heading is, or has become, too broad;

(3) it is desirable that correspondence files should be numbered and filed in numerical order. The numbering is ancillary to the classification system which must be worked out first. The aim is clearly to distinguish one from another, to provide a means of reference, to enable them to be traced from index entries, and to facilitate systematic storage. Numbers can help to show that a file forms part of a series. It is preferable to indicate the department owning the file by letter symbols eg. 'F' for Finance Department, after which a number will follow to indicate the main subject or sub-subject, followed by the reference number of any case file which may have been created. Colour coding of file covers can provide a satisfactory alternative method of distinguishing ownership and may also assist filing;

(4) indexes indicate what files exist on a given item of business and to enable files to be traced. The most suitable type of index for the majority of purposes is the strip index. A maximum of 2 indexes may be necessary – subject, numerical or nominal, the latter being used when it is necessary to be able to trace papers by the name of an individual, or firm. Elaborate indexes, including the maintenance of inward correspondence registers should be avoided. They are generally an indication that the classification system is at fault. People will set up costly systems to try to find papers by relying more on notes of the receipt of letters than on any expectation that a file of a particular title is likely to contain the sought for letter and its companion correspondence.

(5) The method of storing files does not become a significant item of cost until the volume of office filing becomes greater than is found in the majority of hospitals. Storage in 2 or 4 drawer steel filing cabinets is neat and clean but costs 4 times as much as storage on shelves and occupies one and a half times the floor space. Cabinets are prone to mechanical defects (eg. drawers sticking, runners get out of alignment) and require more effort by the staff to remove and replace files. Storage on shelves is convenient and economic and provides easier access to the files, but the files then tend to collect dust. This can be minimised by providing roller blinds or by enclosing the files in box-files or other containers – but these devices tend to slow up the handling and re-arranging of files, are an added expense and take up additional space. There is however a case to be made for the use of lockable filing cabinets where security of documents is necessary. There may also be the exceptional case where the need for ease of accessibility justifies the additional cost of a rotary filing system.

20. It is important to ensure that the space available for filing is used as effectively as possible. Some of the ways in which this can be done are to:

- (1) reduce the volume of papers to be retained by removing unnecessary or ephemeral matter;
- (2) use more appropriate racks;

- (3) erect a special storage building using the cheapest appropriate form of construction on available space in the grounds of the hospital;
- (4) remove to secondary storage all files, such as case notes, whose referral rates do not justify their retention in the immediate access store. Reference to case notes more than 10 years old is infrequent. (See Appendix C of the Tunbridge Report.)

Studies so far undertaken indicate that it will only be after all such possible steps have been taken that microfilming systems should be considered. Not only are they expensive to install and operate but there is evidence that their use has the effect of inhibiting reference to records which might otherwise have been useful.

Document Copying, Printing and Reproduction Services

21. The different mechanical methods available for copying and reproduction work are:

Duplicating	Photocopying Process
(1) Spirit duplicating	(1) Thermofax
(2) Stencil duplicating	(2) Diffusion Transfer
(3) Offset lithographic printing	(3) Direct Positive
	(4) Reflex
	(5) Verifax
	(6) Photostat
	(7) Electrostatic
	(8) Dyeline
	(9) Micro-filming

22. The reproduction of documents within the hospital service will largely be confined to duplicating methods with the use of one or other photocopying processes (eg. Verifax, Electrostatic, Dyeline) because they are relatively economic and easy to operate in meeting general copying needs.

23. The speed with which photocopying machines and materials are introduced, and improved, and the changing prices of machines and materials make it difficult to produce meaningful guidance on costs and systems work which is of value for other than comparative purposes at a particular time. A broad general guide in considering which method of mechanical reproduction of documents should be adopted is that when a very small number of copies are needed, photocopying is usually more economic and where a larger number of copies are needed then a machine duplicating process is probably the answer. A concise statement of the methods of reproduction which are in general use is, together with comparative tables of the suitability of processes and relative costs, contained in the book 'Document Copying and Reproduction Processes' by H R Verry. Details have been abstracted to provide information on processes, suitability and costs in the Abstract of Efficiency Studies No 9.

24. The correct location of duplicating and photocopying machines under a centralised service is important and must take into account not only the requirements of the users but also the need to avoid under-employment of staff. In smaller organisations, it may be that the equipment can be best located in or near to a typist's or clerk's office, so that its use can be controlled and so that the operator can be

employed on other duties when not required to operate the equipment. Working rules should be formulated and published as a users' guide so that the originator of the request and the operator know which method of reproduction is suitable and are aware of the cost of copies.

25. The use of copying processes in a systems application has reduced costs, eliminated unnecessary copy typing and its associated dangers of transcription errors, and time spent on checking in several Pathology Departments (Abstracts of Efficiency Studies Nos 5, 72 and 90). In particular their use has proved to be suitable and economic for the reproduction of routine and cumulative Haematology and Biochemistry reports. It must not be assumed however that the use of photocopying equipment for the production of Pathology reports will automatically produce appreciable savings. Before reaching a decision, a study should be made of the relative advantages of different methods of producing reports including photocopying, dyeline etc processes and possibly, if acceptable, self copying paper.

26. Stencil duplicating still remains an appropriate and economic method for producing many documents including Committee agendas and minutes. In certain cases, it has been possible to justify the use of automatic stencil cutting machines to improve the service by reducing the amount of typing and checking time involved.

27. A challenge to stencil duplicating has recently come about with the development of smaller offset litho machines which can, of course, be used for other purposes. These machines have a high rate of output and the quality of the work they produce is good. They are relatively lowly priced and should always be considered when a reproduction unit is being established on a group or area basis.

28. A routine maintenance programme should be established for all office equipment and for photocopying machines in particular in order to reduce the possibility of breakdown which can cause loss of confidence in the system.

Typing and Secretarial Services

29. The use of dictating machines produces savings in time and can alleviate shorthand typist recruitment problems. Adequate training is essential for users and typists. The use of dictation machines provides a facility which can be made available to more staff than is possible with a shorthand writer service. This in turn produces savings in staff time.

30. Measurement of the work of typing staff can vary from key taps to numbers of sheets of typing. An acceptable output for copy typing has been determined as 20 units per day (a unit being an A5 or quarto sheet of single spaced typescript). A simple and effective measurement tool is the transparent template, details of which are given in *The Measurement of Typing Work* published in O & M Bulletin - May 1962. Other methods of setting standards and measuring output are given in 'Work Measurement in Typewriting' by W W Burke and J Maxim Watts, published by Pitman.

31. Typewriters should be cleaned as a matter of routine. Where there are sufficient machines it is likely to be worthwhile to enter into a routine maintenance contract. A procedure should be agreed for condemning equipment. Attention should also be given to the purchase of appropriate functional furniture (eg. desks not over 26in high, footrests, well supported swivel chairs etc) and to the reduction of noise by acoustic tiling, carpets and felt desk pads.

32. Typing and secretarial services can be provided in several ways, the most popular are by:

- (1) a pool system;
- (2) an individual allocation of typists and secretaries to certain staff;
- (3) 'secretariats' of secretaries and typists allocated to serve specific departments.

33. Apart from Medical Secretarial services it will be uncommon for the numbers of typing and secretarial staff in a hospital to be sufficiently large for the organisation of staff on a large 'pool' basis to be efficient. Nevertheless, it is uneconomic in most circumstances for staff to be provided on an individual basis. This creates problems during holidays and sickness and little guidance can be given to new or junior staff. The most effective alternative is the setting up of 'secretariats' to provide a typing and secretarial service to one or more departments or sections. This can comprise one senior secretary or typist and two or three others. It provides an interest for the typists in that their work can be identified with the section they serve and relief can be easily arranged during absences. The day-to-day management should be the responsibility of the senior secretary or typist.

34. A recent improvement in typing output has been achieved by the introduction of a simplified typing layout. The new format without impairing legibility shortens typing time by cutting out unnecessary key depressions and carriage movements and is easier as well as quicker to do, especially by less experienced or occasional typists. The basic differences with the traditional typing layout are:

- (1) the beginning of as much of the typescript as possible at a common left-hand margin, so eliminating nearly all indentations, and
- (2) the omission of punctuation marks, brackets and underlining etc, whenever these are not essential to clarity and understanding on the part of the reader.

Exceptions to this layout are limited to lengthy reports requiring numerous paragraph and subparagraph headings, because of legal necessity, or obligation to conform with other bodies' requirements.

35. Other ways of improving typists' productivity are by the use of glazed window envelopes, the introduction of continuous stationery and standardisation of paper sizes.

Forms Design

36. A useful preliminary step in controlling the unnecessary growth of forms is for a Group Officer to set up a master-file containing copies of all forms in

use in subject order together with an outline of any related system. A survey of all existing forms can then more easily be made and duplicate, overlapping and obsolete forms removed from the range. Action should be taken to standardise forms where possible not only within the Group but also, if appropriate, within the Region using any information which may be available in the Regional Work Study Unit. Medical Records Forms should follow, as far as possible, the principles commended in the Tunbridge Committee's report on the Standardisation of Hospital Medical Records. Abstract of Efficiency Studies No 127 and 128 illustrate practical ways of tackling problems associated with the rationalisation of forms.

37. Good forms design can increase operational efficiency and the principles which should be followed are set out on pages 16 to 31 of 'The Design of Forms in Government Departments' compiled by the O & M Division of HM Treasury. International paper sizes should be adopted. If a form is to be completed by typewriter, care should be taken to ensure that the form provides the correct spacings. If it is to be used in connection with Automatic Data Processing systems, it should be designed to facilitate punching. Abstract of Efficiency Studies No 103 demonstrates how a review of official order forms was carried out and illustrates the recommended model order form and acceptable alternatives.

38. When forms are printed by commercial firms, substantial unit price reductions are often possible by optimising order quantities. Supplies Officers should be aware of consumption rates either from their own records or from an estimate by the user, and in planning order sizes, care must be taken to avoid a loss through obsolescence. Studies have shown that a considerable number of obsolete forms and bespoke printed books are retained in stock, thus reducing or cancelling the benefit saved from lower unit purchase prices.

39. Elaboration in printing is expensive and such features as:

- (1) multi-colour printing;
- (2) carbon-patching;
- (3) complicated design;
- (4) variety of type sizes;
- (5) non-standard paper sizes;
- (6) non-standard punching

should only be included if they produce significant useful benefits.

40. For general application carbon paper will be the most appropriate choice for the majority of direct copying work in the hospital service. This is a simple and obvious way to eliminate work by the multiple production of copies of forms (ie. in duplicate, triplicate and quadruplicate) from the one original. These forms extend throughout the hospital and include such items as:

- (1) official orders;
- (2) official receipt forms;
- (3) debtors account forms;
- (4) requisition/issue notes;
- (5) goods received book;
- (6) patients property books.

41. Carbon backed paper, carbon patching, or one time carbon avoid the need for interleaving and may have specialist applications.

42. Self copying papers are marginally more expensive, but provide permanent smudge-free copies and avoid the need for interleaving of carbon papers. They have been used for such records as:

- (1) request/report forms;
- (2) ward treatment books;
- (3) official order forms, issue/requisition notes etc.

43. Abstract of Efficiency Studies No 121 describes a study of ward books and forms, as a result of which combined ward treatment and work books were introduced. The book provides for two copies of certain information, using self-copying paper.

44. It is worthwhile imposing an expenditure limit on items of printing and stationery by:

- (1) means of an overall sum;
- (2) control of numbers and quality on an individual or departmental basis.

The long term aim should always be to prevent such expenditure rising unless increases are justified by operational savings.

45. Many items of stationery and office machinery are available at very competitive prices from HMSO which should be regarded as the normal supply service. The Stationery Office will also undertake overprinting of forms.

Communication Services

46. Management Services (NHS) have carried out studies of communication aids in use in the Hospital Service. The results of the studies may be summarised as follows:

(1) **Comprehensive Pneumatic Tube Systems.** It was concluded that, in National Health Service hospitals, comprehensive pneumatic tube systems are of doubtful value. Their use is limited; their virtue of speed is overrated; they are expensive to install. By comparison, a well organised messenger service is 50 per cent more effective in eliminating errands; costs virtually nothing to install and operates at about one third of the cost. Exceptionally a case may be made for a direct point to point pneumatic tube system.

(2) **Closed Circuit Television.** Current studies are being undertaken to examine the feasibility and use of closed-circuit television as a medium for improving the speed of communications in the hospital service. It is too early to give guidance. One aspect of a study relating to ECG, EEG and medical photography data transmission is summarised in Abstracts of Efficiency Studies in the Hospital Service No 122 - Closed Circuit Television.

(3) **Patient/Nurse Call Systems.** The main conclusions of the study of Patient/Nurse Call Systems are:

- (1) a non-auditory patient/nurse call system should be satisfactory for most ward units; the ward layout may, however, have some influence on call-button requirements and the location of the call indicators;
- (2) the saving in nursing time achieved by use of auditory systems is negligible;

(3) there is a need for call facilities in the ward units covered by the study (details of a system which will meet the requirements identified during the study are given in Hospital Building Note No 4).

(4) **Facsimile Telegraphy.** Facsimile telegraphy is electronic equipment designed to transmit and receive the contents of documents in facsimile over telephone or private line for any distance. It has been found that there are a number of documents in common use in hospitals which are suitable for transmission between departments by facsimile telegraphy but their transmission by this means would cost substantially more than a messenger service. Only in the case of pathology report transmissions were there advantages, but on the evidence of trials these proved too tenuous to justify the increased cost. Studies which have so far been carried out indicate that compared with the telephone, and other similar developing systems, facsimile telegraphy costs more, is slower and does not in itself contain a means of ensuring that the message has been received by the intended recipient. Fairly rapid development of this type of equipment is however taking place and further studies are planned. The possible use of teleprinter equipment is also to be the subject of a separate study.

47. Telephone requirements in a hospital can be adequately met by the use of a Private Automatic Branch Exchange (PABX) or a combination of a Private Automatic Exchange (PAX) and Private Manual Branch Exchange (PMBX). Guidance on the selection of a new installation or where major alterations are proposed is given in the draft Hospital Technical Memorandum on Telephones, and in Hospital Building Note No 18 - Administrative Department. Advice is also available from the Post Office Area Telephone Manager. Where necessary, space should be allowed for associated equipment with the telephone exchange to provide facilities for systems for fire alarms, staff location, tie lines, medical gas alarms, lift telephones.

48. Studies have been made of means of collecting charges for patients' private calls, setting up of an information bureau to handle enquiry calls for patients and external and internal hospital telephone systems. (See Abstracts of Efficiency Studies Nos 24, 51, 84).

49. In smaller hospitals, it is usual to have the exchange adjacent to the Enquiry Counter. This facilitates the passage of messages and allows a receptionist to act as operator providing a relief during short periods of absence.

50. Rapid location of staff increases the general efficiency of a hospital but this cannot always be provided by a telephone system. Most staff call location systems operate in conjunction with the telephone system and provide a means of informing members of the staff that there is a message for them and that they should proceed to receive it on the nearest telephone. Basic requirements are that the system should be quiet in operation, clear, reliable and cause little interference to other electrical equipment. Hospital Technical Memorandum No 20, Staff Location Systems, describes in detail different types of call systems for hospitals.

Post Room Arrangements

51. A reliable routine document collection and delivery service should exist and should be carefully planned and maintained. It should normally be part of the regular comprehensive messenger service of the hospital. Such a service will produce savings in the time taken in errands by more highly paid staff, will reduce walking time for the porters, will reduce *ad hoc* demands on the portering service, and should assist in planning the work of other departments. Group arrangements for the transmission of inter-hospital communications may be dependent on an organised van service.

52. The Post Room provides an opportunity to give a general inductional training to newly recruited personnel in clerical and portering grades. It may also be used as a proving ground for porters who demonstrate ability in minor clerical tasks.

53. Some of the ways in which Post Room procedures can often be improved are to:

- (1) abolish the postal inward and outward books (except for registered or recorded delivery items and mail containing valuables);
- (2) arrange for mail to be sorted by an early shift porter and distributed to offices by, say, 9.0-9.15 am;
- (3) sort letters and packages direct on to a messenger delivery trolley to save double handling;
- (4) publicise the collection and delivery times for internal and G.P.O. mail throughout the hospital.

54. Postal franking machines can usually be justified even if the number of letters is relatively small. Not only do they save work, particularly if a detailed postage book is kept, but they provide greater security. It is generally more economic to purchase a franking machine than to hire one.

Accommodation

55. Hospital Building Bulletin No 5 describes a method by which the optimum inter-relationship of hospital departments can be determined using traffic movements as a main criterion. In addition to its more obvious application during the planning of new hospitals, it will also be of assistance when considering additions or alterations to an existing hospital or when changes in the use of accommodation are contemplated.

56. A range of office area furniture has been recommended by a Specification Working Party and is featured in a report which was issued to the Hospital Service (*Report of the Specification Working Party on Office Area Furniture*). The range includes desks, office chairs, tables, bookcases, filing cabinets, library furniture and clothes lockers. The Working Party's aim was to provide a reasonable standard of furniture at a reasonable price. Purchases are arranged through Central Supply.

Selective Bibliography

57. The following documents contain information about Post Room, Printing and Common Services:

Hospital O & M Service Reports: London. HMSO

- No 2 *Medical Records and Secretarial Services.*
- No 5 *The Filing of Management Papers. (Out of print.)*
- No 11 *Hospital Portering Services.*

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

- No 5 *Photographic Reproduction of Reports.*
- No 9 *Document Copying.*
- No 10 *Medical Stenographers Department.*
- No 24 *Collection of charges - Private Telephone Calls.*
- No 50 *Patient/Nurse Talk-Back System.*
- No 51 *Ward Telephone Calls.*
- No 72 *Photographic Reproduction of Reports.*
- No 84 *Telephone Services.*
- No 90 *Documentation System - Pathology Department.*
- No 103 *Order Form Design.*
- No 107 *Improvement of Services to Patients.*
- No 109 *Centralised Secretarial Services.*
- No 120 *Standardisation of Vehicle Records.*
- No 121 *Ward Books - Combined Treatment and Ward Book.*
- No 122 *Closed Circuit Television.*
- No 127 *Rationalisation of Forms.*
- No 128 *Form Requisitioning.*

Hospital Building Notes: London. HMSO

- No 1 *Buildings for the Hospital Service.*
- No 4 *Ward Units.*
- No 18 *Administrative Department.*

Hospital Building Bulletins: London. HMSO

- No 5 *Traffic movement and the inter-relation of Departments.*

Hospital Technical Memorandum: London. HMSO

- No 9 *Pneumatic Tube Communication Systems.*
- No 15 *Patient/Nurse Call Systems.*
- Nos 18, 19 *Facsimile Telegraphy.*
- No 20 *Staff Location Systems.*

Standing Medical Advisory Committee Report:

The Standardisation of Hospital Medical Records - the 'Tunbridge' Report. HMSO.

Report of the Specification Working Party on Office Area Furniture. DHSS.

O & M Bulletin Volume 17 No 2 May 1962 - *The Measurement of Typing Work.* Civil Service Department.

Work Measurement in Typewriting. W W Burke and J Maxim Watts. Pitman.

Information Service on Office Reproduction Processes. HMSO.

Document Copying and Reproduction Processes. H R Verry. Fountain Press.

The Design of Forms in Government Departments. HMSO.

Post Office Guide. HMSO.

In addition the following document is being prepared for publication:

Hospital Technical Memorandum: *Telephones.*

Scope

1. This section includes guidance about the work of the Medical Records Department in a hospital or a hospital group. A separate section exists for the Medical Secretarial Services. (No 12).

Organisation

2. Medical Records work will generally be organised on the basis of the hospital rather than the Group, although services may be provided by a large hospital for nearby small hospitals with the use of a common numbering system. In the future, the possibility exists of organising records on a Group or some larger basis, say at a District General Hospital, or a system of record linkage developed with the aid of computer facilities for information storage and retrieval.

3. A Group policy for the organisation of medical records work should exist, devised perhaps by a Medical Records Sub-Committee, and arrangements should be made for its implementation. Among other matters the Group policy should be expected to provide general guidance about the basic organisation of records work, the availability of records services, the roles of the Medical Records Officers, the structure, form, order and content of records and the length of time records are to be retained. Since the work is clerical in character, the responsibility for its effective discharge lies most appropriately with the general administration. The Hospital Secretary will normally have overall responsibility for records work but the Group Secretary should exercise a general oversight of policy implementation and the efficacy of the working arrangements where the Medical Records Officer has Group responsibilities.

4. Where Hospital Activity Analysis is in operation, the Medical Records Officer should ensure that completed data collection source documents are sent to the appropriate centre for processing without delay, and should oversee the coding of data where this is undertaken at hospital or Group level.

5. The main considerations which should govern the organisation of the work of the Medical Records Departments are:

(1) medical records should always be available when required and in the form they are required.

National standard forms in the HMR series will be used as required and forms used for functions for which no standard forms exist at present should be of compatible design. Good systems of numbering and tracing to enable speedy retrieval are required;

(2) adequate liaison should exist between the different groups of staff using medical records to enable due consideration to be given to such matters as the design and content, methods of storage, availability, use and movement of records;

(3) medical records procedures should cause patients the minimum of waiting, inconvenience and embarrassment. Appointment systems and patient documentation should be carefully planned not only to reduce waiting and inconvenience to patients but also to enable the departments concerned to work efficiently and achieve the most advantageous use of staff and equipment. Transport requirements need to be carefully assessed and the planning of journeys co-ordinated with patient and departmental requirements and so far as is necessary with ambulance authorities.

6. In addition to the clerical staff of the Medical Records Department concerned with case papers, statistics, registrations, appointments, admissions, transport facilities, surgical appliances etc, it is usual for the Medical Secretarial Services to be under the general control of the Medical Records Officer.

7. Although the clerical arrangements in associated departments, eg. Pathology, Physiotherapy, X-ray, Accident and Emergency may not in all hospitals be under the direction of the Medical Records Officer, the clerical staff may be subject to the general control of the Medical Records Officer for selection, allocation and discipline. This arrangement can add a greater degree of flexibility to staffing procedures and can help to broaden the experience of staff.

8. The Medical Records Department will generally be adjacent to or linked with the Out-patient Department, where one exists, since normally a considerable part of its work is associated with out-patient arrangements.

Working Methods

9. The 'Tunbridge' Report recommended that a standard patient referral letter should be introduced for completion by General Practitioners containing provision for all the necessary information required for the pre-registration of patients. It can reduce clerical staff time and simplify administrative procedures involved in sending questionnaires to patients for completion. The letter should be read by the Consultant or a member of his firm on the earliest possible occasion after the receipt of the form.

10. The registration of patients in advance of attendance is recommended because:

- (1) patients are spared possible embarrassment;
- (2) queueing at registration desks is reduced or eliminated;
- (3) it permits an even flow of work in the Medical Records Department avoiding peaks of work which must be handled immediately.

11. Non-attendance by out-patients can be between 10 per cent and 20 per cent. In order to avoid unoccupied staff time, a percentage addition, based on local experience, should be made to out-patients' bookings. Where block bookings exist, the booking times of the extra patients should be staggered to reduce waiting time in the event of a high rate of attendance.

12. Except for urgent cases, the despatch of new out-patient appointments to patients should allow sufficient time to enable patients to make suitable arrangements or to notify the hospital of their inability to attend. This will provide an opportunity for the Medical Records Department to call in a replacement should this be necessary.

13. If it is unlikely that the patient can be given an appointment for some time, perhaps for a month, an acknowledgment should be sent to the patient soon after the receipt of the General Practitioner's referral letter. This assures the patient that he has not been overlooked and reduces the number of enquiries which might have been made if the patient had been uncertain about the arrangements being made for his appointment.

14. The follow-up appointment should be made prior to the patient's departure from the hospital and recorded directly on to the clinic list, which should be prepared in duplicate. This avoids the need for despatching appointments subsequently whilst the copy of the list for the clinic staff is prepared without further effort.

15. The advantages of an efficient system of mechanical registration of patients' identification details are:

- (1) it avoids medical and nursing staff in repetitive writing, with the attendant risks of transcription errors, omissions and illegibility;
- (2) it speeds clerical work in Medical Records Departments in connection with linkage of Pathology and X-ray reports with relevant case notes;
- (3) it enables patients' details to be reproduced to a standard pattern, assisting staff to locate the information required more easily.

16. The main systems of mechanical registration are as follows:

- (1) embossed metal or plastic plates requiring special plate embossing machine;
- (2) aluminium foil master which can be embossed on a standard typewriter;
- (3) stencilling;
- (4) spirit duplicating.

When capital costs, annual running costs, noise levels and degree of utilisation are taken into account, the more expensive and more complex types of addressing machines may not be justified for patient registration purposes. A hand operated rotary spirit duplicator is a simple, flexible machine which can produce clean un-smudgeable dry labels at an economic cost.

17. A comparative cost study in 1968 showed that the running costs, purchase and preparation of masters and purchase of gummed labels for 10,000 registrations (16 labels per patient) were approximately:

Spirit duplicator	£100
Embossed plates - metal	£200
Embossed plates - plastic	£250
Stencil	£300

The cost of purchasing gummed labels was less than a fifth of the cost of purchasing self adhesive labels whilst the cost of purchasing single labels or labels in sheets was approximately one third of the cost of gummed labels in continuous form.

18. The logical extension of pre-registration is to ask patients to report direct to the clinic and this system may prevent some duplication of effort and should reduce the queues at the main reception point. Good signposting is required. The clinic list and the case notes should be sent to the clinic before the clinic commences to avoid the need to call for individual case notes. If case records are assembled 3 days in advance of the clinic, sufficient time is provided to search for notes. Assembly more than 3 days in advance frequently involves wasted effort as some notes may still be in circulation or receiving attention.

19. It is important to pull X-ray films for out-patients only on request, since the pulling of films unnecessarily can add substantially to the amount of work involved, not only in the actual pulling and subsequent refile of the films, but in the extra demands on the portering services. If particular Consultants require to see previous films for all patients at consultation, it may be worthwhile, for some specialties eg. Traumatic/Orthopaedic Surgery, to file films and notes together during a course of treatment.

20. The in-patients waiting list should be centralised and can be conveniently maintained in the Bed Bureau section of the Medical Records office. The maintenance of waiting lists is clerical work and as such is more appropriate to the clerical staff of the Medical Records Department than to Medical Secretaries. The association with the Bed Bureau enables a check to be made of waiting list cases admitted as 'emergencies'. The Hospital Secretary should be associated with the supervision of the preparation of waiting lists in order to facilitate any necessary changes in the organisation of clinics and other medical services.

21. The maintenance of the waiting list on visible-edge records permits flexibility in grouping like conditions and eliminates the danger of overlooking entries in books and of rewriting book entries.

22. If cases nearing the head of the waiting list are reviewed a month or so prior to the anticipated admission dates to confirm whether treatment is still required, whether any dates are unsuitable and whether patients are able to come in at short notice, and by what means they can quickly be contacted, eg. by telephone, last minute attempts to select and send for patients and excessive use of telegrams can often be avoided.

23. The copying of admission lists can involve a great deal of clerical effort. A review should be carried out from time to time to establish how many copies are needed so that they can be prepared in the most economical way.

24. Details of all admissions should be notified to a central admission point to simplify arrangements for obtaining additional details of the patient eg. drug therapy, and to enable documents and labels to be prepared and made available on the ward. Notification to a central point is a convenient way of initiating work in connection with other matters affecting the patient eg. Social Security benefits.

25. Case notes and previous X-ray films should be available on the ward on the arrival of the patient for immediate reference and to avoid errands being run to retrieve individual case notes or X-ray films.

26. The main considerations which should apply to the form and content of the medical records and the arrangement of records within the case note folder are:

(1) whilst the adoption of national standard record forms is not mandatory, in general the design and content of case notes may be expected to conform broadly to the principles enunciated in the Report on the Standardisation of Medical Records and to the more recent advice given by the Advisory Committee on Hospital Medical Records. This should include such matters as, the use of International Paper Sizes, the logical arrangement of papers within the case folder, the adoption, wherever practicable, of standard format and design of documents in general use, eg. Patients Identification Sheets, Clinical Notes, Notices of Consent, Test Reports, Charts, Questionnaires and Formal Notifications so as to facilitate reference to them;

(2) although full details about the patients will be required initially only some of this information will be needed in making requests for tests, examinations etc. In these, care needs to be exercised in selecting the identifying particulars, which should be restricted to essential information. The inclusion of the patient's hospital number, as well as his name, on all forms is important;

(3) the design of case note folders is at present being reviewed and recommendations about such matters as the use of colour coding, and the information which should be printed on the folders are likely to be made. Information printed on case note folders should be kept to a minimum, and it is doubtful whether there is a need for inclusion of the following items:

(i) the warning 'Confidential' 'Not to be handled by the patient';

(ii) printed provision inside the folder for identifying particulars;

(iii) provision for dates of admission and discharge;

(4) the printing of unit numbers on folders is expensive. Numbers should either be stamped by an automatic numbering machine or be handwritten;

(5) a limited use of different coloured paper or printing may assist in distinguishing some different types of forms. The widespread use of colour, however, may lead to some confusion and should be deprecated.

27. The way in which the filing and retrieval system is organised can significantly affect the service given by the Medical Records Department. The following information may be useful in an assessment of the effectiveness of the system under review:

(1) shelves can provide half as much filing space again as cabinets at one-fifth the cost. Racks fitted with castors (see Abstract of Efficiency Studies No 11) increase mobility. The latest files - most likely to be in demand - should be located as near as possible to staff using them;

(2) pulling and filing take longer if folders are packed too tightly on shelves and too little gangway space between rows is allowed. On average about 60 to 65 case folders per foot run is required, whilst the width of the gangway should be approximately 3ft. Guide cards are useful to divide batches of files (division every 30 notes) and facilitate pulling and putting away;

(3) if folders are fitted with pockets, filing spine uppermost is convenient for pulling and filing but may cause excessive wear on edges of folders; in general, filing spine downwards is the best method;

(4) the use of a limited range of different colours for each batch of say 1,000 case notes can facilitate sorting of the notes prior to filing away.

(5) case notes should be booked out of the filing store to the place of first issue by means of a tracer card. A note of further movement should be kept at each place of divergence from the normal pattern of movement;

(6) as it is impractical to attempt to keep all case notes indefinitely, hospitals should decide on a policy of weeding of files and subsequent retention. Micro-filming is a means of easing pressure on storage space but reading from film is inconvenient for medical staff and printing out is costly. It is often cheaper and better to build additional storage rooms;

(7) the failure to file reports etc, and case notes promptly can increase the time taken to retrieve notes and reduce their utility. Arrears of filing should not be allowed to accumulate;

(8) sorting racks are to be preferred to tables or desks for rough sorting.

28. The establishment of a 'current file' of case records of patients currently attending the Out-patient Department or to be admitted can substantially reduce the time spent searching for records. It will also reduce the number of entries made

on the tracer card to that of the transfer to the 'current file'.

29. A 24 hour service should be provided wherever practicable, if necessary restricting access to the Medical Records library at certain times to authorised staff.

30. When files go astray, much time can be spent searching for them. Tracing clerks should use a check list of locations to be searched. If there are a number of files which are difficult to trace, it is often better for one clerk to deal with them all rather than that several clerks should make independent searches, visiting the same locations. The Medical Records Officer should keep a permanent record of all instances where unusual difficulty is experienced in tracing files so that causes can be established and remedies considered. (See Abstract of Efficiency Studies No 132). Care should be taken to book out files sent out of the hospital. The attachment of a distinctive flash to files from other hospitals helps to remind the recipient that the 'sending' hospitals still have the files booked out.

31. Responsibility for safe custody of case notes and tracing of files should be assigned to nominated clerks. Medical Secretaries should be encouraged to make less urgent requests on an application form rather than by telephone which causes interruptions. The portering service can often be utilised to convey applications and later, the files, to save the Medical Secretaries making time-consuming journeys.

32. In smaller departments, it may be possible for one clerk to accept complete responsibility for certain clinics including the making of appointments, follow-up of failures to attend, clinic reception, assembling of case notes and diagnostic reports, and filing. In larger departments, however, it will be necessary to allocate the work on a functional basis, ie. appointment clerks, registration clerks, filing clerks.

33. Where called for, special arrangements should be made for reports on pathological, X-ray and similar investigations to be sent direct to the medical 'firms' requesting them but where this is done particular care must be taken to ensure that such reports are filed promptly after scrutiny. Such reports sometimes accumulate on wards after patients have left and are sent belatedly to the Medical Records office for filing. This practise should be discouraged as it may lead to loss of the reports concerned.

34. Delays in completing patient discharge letters and summaries can lead to avoidable questions from General Practitioners about follow-up treatment etc. Moreover such delays often cause case papers to become mislaid, and waste clerical staff time.

35. In hospitals where Chest Clinic records are kept independently of relevant X-rays and other medical records amalgamation of arrangements for storage can achieve a very considerable saving in administrative costs provided that suitable accommodation is or can be made available.

36. The introduction of multi-lingual instruction forms and notices for patients should help reduce delays and errors which can occur in areas in which a number of languages are in common use.

Staff

37. A formula which has been derived from a number of studies provides a means of calculating the number of clerical staff likely to be required by a Medical Records Department. It is:

$$\frac{12.8 D + 9 N + 4.8 T + 1.9 (A + E)}{61672}$$

Where D = Discharges and Deaths
 N = New Out-patient attendances
 T = Total Out-patient attendances
 A = New A & E attendances
 E = Total A & E attendances

} S.H.3 figures

An addition of 10 per cent should be made to the result for annual and sick leave.

38. The Medical Records Officer post should be excluded from the assessment. In addition to the above, a local assessment should be made of work other than pure medical records services. It might include such items as:

- (1) services provided for other hospitals;
- (2) financial work - Private Patients, RTA accounts;
- (3) cancer registration;
- (4) hearing aid work;
- (5) hospital activity analysis.

Because of the relationship between the Medical Secretarial and the Medical Records Services, it will normally be advisable to consider jointly the numbers of staff employed in the provision of these services.

39. Flexibility in use of staff is essential, particularly in small departments where it is useful for staff to gain experience of as many different functions as possible. However, too frequent changes of duties cause confusion to those outside the department as they become accustomed to contacting a particular officer for a particular service.

Accommodation

40. In order to facilitate communication between departments actively using the same files and to simplify control and supervision of staff by the Medical Records Officer, the Medical Secretarial Services should be accommodated close to the Medical Records Department.

41. The use of secondary storage areas for 'non-current' case papers should be reviewed. Where five years have elapsed since the last discharge of the patient it may well be preferable to use secondary storage facilities rather than to use mobile shelving to extend the number of files on hand or to employ microfilming. Studies of recall rates of patients show that retention for immediate access of papers for five years following last discharge covers more than 90 per cent of needs.

Selective Bibliography

42. The following documents contain information about the organisation of work in Medical Records Departments:

Hospital O & M Service Reports: London. HMSO

No 2 *Medical Records and Secretarial Services.*

No 3 *Chest Clinics.*

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 11 *Mobile Steel Shelving.*

No 12 *An Addressing Machine System.*

No 49 *Mechanical Registration of Patients.*

No 107 *Improvement of Services to Patients.*

No 132 *Filing of loose papers.*

Standing Medical Advisory Committee Report – *The Standardisation of Hospital Medical Records – the 'Tunbridge' Report.* HMSO

The report of the Working Party on Psychiatric Hospital Records is in an advanced stage of preparation. This contains recommendations on the organisation, design and maintenance of medical records in psychiatric hospitals and psychiatric units in district general hospitals.

Scope

1. This report provides information about the organisation of Medical Records Services in a hospital as a group of services. It is published under cover of the Medical Records Department (No. 42).

Organisation

1. Medical Records Services will generally be reported on the basis of the hospital rather than the clinical department, but be extended to a large hospital for certain special services. The service should be organised in such a way that the physical working parties and interdepartmental contacts in the medical staff is satisfactorily arranged. The following items are those of the Medical Records Department which are essential to it:

- (1) an adequate number of service staff to carry out the service;
- (2) a suitable method of record filing;
- (3) control over the production and transfer of records;
- (4) adequate training, supervision and control of the auxiliary services.

2. The Medical Records Officer being responsible for both the records and the auxiliary services is a position in which great working relationships between clinical staff and auxiliary with inter-departmental co-operation in the service given in the hospital are essential.

3. Services should normally be organised to avoid duplication. A single authority should be responsible to the Medical Records Officer for the organisation of design, management and control of all staff.

4. The use of auxiliary services and inter-departmental control should be actively encouraged. The work of auxiliary services should be arranged to complement the work of the medical staff.

Working Methods

5. Medical Records Services can be provided in the following ways:

- (1) by assignment of staff to work

with the auxiliary services in individual clinical departments or units; or as a group of staff; or by employing both arrangements (1) and (2). Method (1) is preferred to the other, giving appropriate responsibilities to staff and providing close liaison between the departments. Method (2) is suitable for special services, filing and work on the records which require flexibility in staff and more continuity of staff. Method (3) is a third method, which can provide a point of contact for the staff, provide relief to clinical records, and help out with control of work wherever there may have been a shortage.

7. Records may be arranged in individual files or groups of 'books', which may be available to the hospital and clinical departments in the hospital itself, and also available for inter-departmental work and for reference. In the latter case it may be desirable to have books available in the hospital, but also to have books available in other hospitals, and to have staff and auxiliary services available to work on the books in the other hospitals. In these cases the books should be kept in the hospital, but also to have staff and auxiliary services available to work on the books in the other hospitals.

8. The use of existing equipment and provision of adequate working facilities and resources should be actively encouraged where possible. It is possible to have separate machines and staff to carry out the production of records, but this is not recommended for the production of records which are to be used generally, where inter-departmental work is involved. Working of records in the use of existing equipment should be arranged and wherever possible facilities, particularly storage, should be provided. It is also possible to have separate machines to carry out the production of records which are to be used generally, where inter-departmental work is involved.

9. A service should be provided for the use of staff by clinical departments to carry out the work of the service, and to provide staff with the facilities of the service. The use of staff should be arranged to complement the work of the medical staff.

10. Records should be arranged in such a way that they are available to the clinical staff and to the medical staff.

Selective Bibliography

- 1. The following literature contains information about the practice of work in Medical Research Laboratories.
- 2. Hospital O & M Service Report, 1950-1951. No. 1. Medical Research and Research in the Hospital. O & M Service Report, 1950-1951.
- 3. Abstracts of Literature Relating to the Hospital. London, 1950.
- 4. The Hospital Management Journal, 1950-1951.
- 5. The Hospital Management Journal, 1950-1951.
- 6. The Hospital Management Journal, 1950-1951.
- 7. The Hospital Management Journal, 1950-1951.
- 8. The Hospital Management Journal, 1950-1951.
- 9. The Hospital Management Journal, 1950-1951.
- 10. The Hospital Management Journal, 1950-1951.

The following literature contains information about the practice of work in Medical Research Laboratories.

- 11. The Hospital Management Journal, 1950-1951.
- 12. The Hospital Management Journal, 1950-1951.
- 13. The Hospital Management Journal, 1950-1951.
- 14. The Hospital Management Journal, 1950-1951.
- 15. The Hospital Management Journal, 1950-1951.

The following literature contains information about the practice of work in Medical Research Laboratories.

- 16. The Hospital Management Journal, 1950-1951.
- 17. The Hospital Management Journal, 1950-1951.
- 18. The Hospital Management Journal, 1950-1951.
- 19. The Hospital Management Journal, 1950-1951.
- 20. The Hospital Management Journal, 1950-1951.

Recommendations

The following literature contains information about the practice of work in Medical Research Laboratories.

- 21. The Hospital Management Journal, 1950-1951.
- 22. The Hospital Management Journal, 1950-1951.
- 23. The Hospital Management Journal, 1950-1951.
- 24. The Hospital Management Journal, 1950-1951.
- 25. The Hospital Management Journal, 1950-1951.

Medical Secretarial Services

12

Scope

1. This section provides guidance about the organisation of Medical Secretarial Services in a hospital or a group of hospitals. A separate section exists for the Medical Records Department (No 11).

Organisation

2. Medical Secretarial Services will generally be organised on the basis of the hospital rather than the Group, although services may be provided by a large hospital for nearby small hospitals. The services should be organised in such a way that the object of providing prompt and effective secretarial assistance to the medical staff is economically achieved. The administrative officer in charge of the Medical Records Department should ensure that there is:

- (1) an adequate standard of service to all departments or specialties;
- (2) a uniform method of record keeping;
- (3) control over the movement and prompt filing of papers;
- (4) adequate training, supervision and control of the Secretarial Services.

3. The Medical Records Officer, being responsible for both the Records and Secretarial Services is in a position to foster good working relationships between clerical staff and secretaries with consequent improvements to the service given to the medical staff.

4. Secretaries should normally be organised in small groups. A Senior Secretary should be responsible to the Medical Records Officer for supervision, allocation of duties, training and provision of relief staff.

5. The use of dictation machines and audio-typing should be actively encouraged – this does not extend to the general adoption of Centralised Dictating Systems which must be assessed on their particular merits in the situations obtaining.

Working Methods

6. Medical Secretarial Services can be provided in the following ways:

- (1) by adoption of a 'pool' system;

- (2) by allocating secretaries to individual Consultants or medical 'firms' or to groups of 'firms';

- (3) by combining both arrangements (1) and (2). Method (3) is preferred to the others provided appropriate accommodation is or can be made available since it combines the advantages of individual allocation with the opportunity of using marginal spare time. It is desirable to avoid, if possible, staffing any unit or firm wholly with part-time secretaries as this can make continuity of work difficult. A useful addition to the second method is a small relief pool, which can provide a place of training for new staff, provide reliefs to allocated secretaries, and help out with arrears of work wherever these may have accumulated.

7. Secretaries can be allocated to individual 'firms' or groups of 'firms', so that they feel themselves to be important and trusted members of the individual teams, and can undertake the organising functions which are so valuable. At the same time, if they work together in small groups one of them can be nominated as the Senior Secretary in Charge, and can supervise, ensure an even spread of work both on a long term basis and from day to day, train and help new staff, and organise lunch breaks and leave periods so as to provide cover for all firms.

8. The use of dictating equipment can produce a valuable saving in medical and secretarial time and should be actively encouraged since a greater output is possible by using dictation machines and audio typists than by shorthand typists. It is particularly useful for the dictation of case summaries and can be used generally when secretarial staff are not available. Training of doctors in the use of dictating equipment should be arranged and adequate dictating facilities, conveniently situated, should be provided. A speedy and accurate transcription service is vital to the acceptance and success of such equipment.

9. A review should be carried out from time to time to ensure that all routine standardised communications and enquiries which are capable of being printed exist in pro forma style, to save secretarial time. The use of glazed window envelopes for letters should also be encouraged.

10. Generally, the in-patient waiting list should be centralised and maintained in the Bed Bureau

Section of the Medical Records Office since the work is essentially clerical by nature. However, if exceptionally, waiting lists are kept by secretaries for their firms, the lists should be kept in a uniform manner. The Hospital Secretary should be associated with the supervision of the arrangements for the maintenance of waiting lists in order to facilitate any necessary changes in the organisation of clinics and allied medical services.

11. Clearly labelled shelf filing should be provided for each firm in the secretaries' offices to accommodate case papers, so as to provide a visual appreciation of those which are awaiting:

- (1) the results of investigations;
- (2) dictation;
- (3) typing;
- (4) signature;
- (5) filing

12. This method of shelf filing can help to provide a more economical and improved service by enabling:

- (1) medical secretaries to ensure that all reports are available in advance of appointments;
- (2) the Medical Records Officer and senior medical staff to be aware of any sizeable backlog awaiting dictation;
- (3) supervisory staff to be aware of any arrears of typing or filing so that work can be reallocated.

13. The tracing of stray case notes should not normally be carried out by the Medical Secretarial Services. This function can generally be organised more effectively and economically by the medical records staff. Saving of medical secretarial time has been found to be as much as 10 per cent when tracing is carried out by the medical records staff.

14. Significant amounts of secretarial staff time can be wasted if medical secretaries are responsible for locating medical staff who are wanted on the telephone. The installation of an effective call system may be justified.

15. The maximum possible use should be made of messenger services for the movement of records, reports etc. between departments. In-patient case notes should be collected by the messenger service immediately after discharge to enable discharge letters and summaries to be dictated, typed and despatched as soon as possible.

16. Except for Accident cases, on acceptance of a patient for treatment or admission, a letter should

be sent to the patient's General Practitioner within 72 hours. On discharge of a patient the General Practitioner should be notified within 24 hours and summary notes despatched within a week.

Staff

17. The output of pool typists is generally about 20 units a day, a unit being an A5 or quarto page of single-spaced typescript including time spent in checking and amending. This yardstick can be used to measure whether the typing output of medical secretaries is reasonable in relation to the time which they spend on typing work. A convenient method for estimating the volume of typescript produced in a representative period is to arrange for the staff to make an extra copy of all documents typed.

Equipment

18. A routine maintenance programme should be established for all office equipment and for dictating machines in particular, in order to reduce the effect of breakdown which can cause loss of confidence in the system.

Accommodation

19. In order to avoid long communication lines between departments actively using the same files and to facilitate control and supervision of staff by the Medical Records Officer, the Secretarial Services should be accommodated close to the Medical Records Department.

Selective Bibliography

20. The following documents contain information about the organisation of Medical Secretarial Services:

- Hospital O & M Service Reports: London. HMSO
 No 2 *Medical Records and Secretarial Services*.
 Abstracts of Efficiency Studies in the Hospital Service: London. HMSO
 No 10 *Medical Stenographers Department*.
 No 109 *Centralised Secretarial Services*.

Scope

1. This section provides guidance about the organisation of work in the Out-patient Department. A separate section exists for the Accident and Emergency Department (No 14).

Organisation

2. In the modern hospital, the Out-patient Department, along with the accident and emergency department, is the 'shop window' of the hospital. It is particularly important therefore that its organisation should be seen by patients and visitors to be efficient and considerate. It is desirable that the overall responsibility for the functioning of the department should be that of a senior administrative officer, possibly the Hospital Secretary or the Medical Records Officer. Responsibility for the day-to-day control and co-ordination of the activities of records staff, domestic staff, receptionists, social workers, nursing and medical staff should be clearly identified with a designated officer. The selection of the officer will depend on local circumstances eg. size and situation of the department, but where in large departments the out-patient superintendent or sister has this responsibility she should not herself take any clinic.

3. Out-patient procedures should be designed to cause patients the minimum of waiting, inconvenience, and embarrassment. Appointments systems should be carefully planned not only to reduce waiting and inconvenience to patients but also to enable the departments concerned to work efficiently. The main factors involved in the control of waiting time are:

- (1) an efficient appointments system which can minimise the time spent waiting to see the doctor;
- (2) adequate consulting and examination room accommodation and efficient arrangements inside the consulting suite, which can reduce the time spent waiting during the consultation;
- (3) adequate accommodation and efficient arrangements in Medical Service Departments;
- (4) full co-operation between medical, nursing and other staff.

4. Transport requirements need to be carefully assessed and the planning of journeys co-ordinated

with patient and departmental requirements and so far as is necessary with ambulance authorities.

5. The siting of the Out-patient Department is important. The external approach and the relation to other hospital departments, eg. Diagnostic, X-ray, Pathology, Physical Medicine, the Pharmacy and the Medical Records Departments, directly influence the quality of the service provided.

Working Methods

6. The smooth working of an Out-patient Department largely rests upon:

- (1) an efficient use of resources – staff, space and equipment;
- (2) a first class appointments system;
- (3) the elimination of unnecessary waiting by patients;
- (4) adequate arrangements for the use of other hospital departments;
- (5) the provision of case notes at the correct time and in good order.

7. Considerable care is required in the compilation of the programme of clinics. This is normally a standard programme constructed on a weekly cycle taking into account the availability of medical staff, types of accommodation eg. examinations and dark rooms, availability of equipment and a balanced deployment of supporting staff. Any adjustment to the standard programme should be controlled from an agreed office eg. Departmental Sister, so that the optimum use of facilities can be achieved and changes communicated quickly to all concerned.

8. The criticisms most frequently made about appointments systems are that:

- (1) clinics start late;
- (2) patients are called too early for preliminary recording and specimen taking procedures. Fifteen minutes is usually sufficient for these activities;
- (3) the appointments system does not accord with the doctors' speed of working;
- (4) bookings stop at some stage in the clinic session eg. at 4 pm when the session ends at 5.30 pm. Patients booked at 4 pm will have to wait unnecessarily for over an hour;
- (5) the agreed booking rate is not adhered to;

(6) adequate notice of annual leave is not given to enable action to be taken;

(7) patients are not called into the consulting room in the order of appointment.

Abstract of Efficiency Studies No 85 which describes a study of out-patient arrangements sets out the new methods and procedures which were introduced and shows the results which were achieved.

9. Non attendance by out-patients can be between 10 and 20 per cent. In order to avoid unoccupied staff time, a percentage addition, based on local experience should be made to out-patients' bookings. Where block bookings exist, the booking times of the extra patients should be staggered to reduce waiting time in the event of a high rate of attendance.

10. The logical extension of pre-registration is to ask patients to report direct to the clinic and this system may prevent some duplication of effort and should reduce the queues at the main Reception point. The clinic list and the case notes should be sent to the clinic before the clinic commences to avoid the need for the collection of individual case notes. If case records are assembled 3 days in advance of the clinic session sufficient time is provided to search for missing notes. Assembly more than three days in advance frequently involves wasted effort as some notes may still be in circulation or receiving attention.

11. The registration of patients in advance of attendance is recommended because:

- (1) patients are spared embarrassment;
- (2) queuing at registration desks is reduced or eliminated;
- (3) it permits an even flow of work in the Medical Records Department avoiding peaks of work which must be handled immediately.

12. Except for urgent cases, the despatch of new out-patient appointments to patients should allow sufficient time to enable patients to make suitable arrangements or to notify the hospital of their inability to attend. This will provide an opportunity for a replacement to be called should this be necessary.

13. Waiting inside the consulting suite varies according to the method of consultation. Time studies have shown that the uninterrupted method of consultation causes less waiting and creates less demand for accommodation than the interrupted method by which the consultation proceeds in stages, with an interval between interview and examination while the doctor interviews the next patient.

14. The variation in consultation times, the need to allow for patients who may arrive late or who may be unable to keep their appointment, and the general pressure on out-patient clinics make some waiting inevitable. Nevertheless, it ought to be possible to achieve a standard of efficiency which enables at least 75 per cent of the patients to be seen by the doctor within 30 minutes of their appointment, and the majority of these within 15 minutes, and causes no more than 5 per cent to wait over one hour.

15. There should be a simple routine check by the officer responsible for the day-to-day running of the Out-patient Department to ensure that arrangements are operating as planned. For example, a comparison

of the time of the last appointment with the finishing times of the clinic is a useful measure of the efficiency of the booking procedures. Excessive waiting and regular variations point to the need for action.

16. In order to ensure that the maximum number of patients are seen with the minimum of waiting it is important to remember that progress is governed by the slowest procedure. One way of securing minimum waiting would be to gear the rate of booking to the slowest procedure, but this would reduce waiting-time at the cost, say, of not providing as many patients at the consultation stage as the doctors could see. The aim in these circumstances should be to improve the facilities at the slowest stage to bring its rate up to that of the consultation stage.

17. Some clinics are of necessity conducted in stages, at each of which the patient may have to wait. At Chest Clinics, for example, the usual procedures are interviewing and weighing, undressing and dressing, having X-ray taken, waiting for X-ray to be developed, consultation and treatment.

18. The flow of patients from clinics to the Medical Service departments should be controlled to minimise unoccupied staff time and to keep waiting time to a minimum. Close co-operation between the departments and an appreciation of the factors which influence the referral of patients can achieve significant savings by helping to improve the appointments system and to provide an even flow of patients.

19. Some waiting is inevitable in ancillary departments because patients are referred without notice from clinics. The main point to be watched is that adequate provision is made for the period when it is known that out-patients will be coming from clinics. Some relief can often be given if patients are given the choice of attending later in the day at a less busy time.

20. The follow-up appointment should be made prior to the patient's departure from the hospital and recorded directly onto the clinic list, which should be prepared in duplicate. This avoids the need for despatching appointments subsequently whilst in addition the copy of the list for the clinic staff is prepared without further effort.

21. Clinics are sometimes necessarily interrupted in an emergency resulting in the absence of the doctor from the clinic for some time. It is advisable to have contingency arrangements clearly defined and well known so that the effect of the absence can be minimised. A recognised deputy should be named where this is possible. Particular attention should be paid to obtaining advance notification of doctors' holidays, special leave, etc.

22. There should be well devised and well recognised alternative duties for clinic staff in the event of:

- (1) the cancellation of a clinic
- (2) the early completion of a clinic

to ensure that staff are fully and efficiently employed. Where more than say two hours of staff time per individual are involved, redeployment to wards and other departments may be possible. For shorter periods redeployment within the Out-patient Department is the likely alternative.

23. Close co-operation must exist between clinic staff and the staff of the medical records department. The early provision of appointment lists may facilitate the production of the case notes, but these are of limited use if they are not up to date. Considerable time can be wasted sorting unfiled papers and chasing missing reports. There should be a clear distinction between the work of the medical records department and the clinic staffs and checking of lists and notes reduced to the necessary minimum.

24. The introduction of multi-lingual written instruction forms and notices should help to reduce delays and errors which can occur in areas in which a number of languages are in common use.

Staff

25. It is impossible to propound the composition of one ideal clinic team because the requirements of different clinics vary according to the demands and techniques required by each specialty. The use of more non-nursing staff, however, could create a potential saving in nursing staff, (Abstracts of Efficiency Studies No 117 and Management Services (NHS) Report No 2 'The Work of Nurses in Out-patient Departments'). At present insufficient evidence exists to enable staffing ratios for Out-patients' Departments to be determined. However, recent studies have identified the pattern of work undertaken by clinic teams.

26. It has been established that ancillary work* accounted for 13 per cent of the total staff time. Qualified nurses spent 12 per cent of their time on such ancillary duties - more than half this time was occupied by two activities, 'obtaining and putting away instruments and equipment, preparation/layout of trolleys' and 'chaperon duties'. This work was not regarded by the Standing Nursing Advisory Committee as requiring the skills of a qualified nurse and there is scope for the close study of the allocation of duties in Out-patient Departments.

27. As little as 7 per cent of qualified nursing staff time has been found to be spent on nursing work*, the area in which these staff might be expected to be mainly employed. The percentages for the individual qualified nursing grades were:

	%
Departmental Sister	-
Sister	9
Staff Nurse	7
Enrolled Nurse	7

These figures suggest that Out-patient Departments generally may be overstaffed with highly qualified personnel much of whose work could be done by lower grade professional staff or even by non-professional staff.

28. Qualified nurses spent 28 per cent of their time on clerical work*, ie. four times the amount of time occupied by nursing work; for all nursing staff the proportion was 27 per cent and for all grades of staff 28 per cent. More than half the time spent by nursing staff on clerical work was accounted for by two activities, ie. 'handling, checking, sorting -

case notes, clinic lists, etc, in a clinic suite or sub-waiting areas' and 'studying case notes, documents, etc, including preparation work for clinics'.

29. Qualified nursing staff spent 16 per cent of their time on administrative and supervisory duties*; the proportion for all grades of staff was 14 per cent. Two activities accounted for 10 per cent of all staff time and 13 per cent of qualified nursing staff time:

(1) receiving/issuing instructions, official conversation: clinic staff (7 per cent of qualified nursing staff time);

(2) directing patients' movements within the clinic (6 per cent of qualified nursing staff time).

The second of these two activities does not usually require professional skill and yet staff nurses were found in all the Out-patient Departments studied to be the grade mainly concerned. Staff of the clinic receptionist type might well undertake this type of duty.

30. Cleaning* occupied 4 per cent of all staff time and of qualified nurses' time; 90 per cent of the time spent on cleaning was accounted for by cleaning, tidying, and preparing clinic suite between clinics and patients.

31. Personal and waiting time* proved to be a significant factor; 29 per cent of all staff time and 29 per cent of all nursing staff time was spent in this way. Of this, nearly 90 per cent was spent waiting. It might be possible to reduce the amount of waiting time if instead of being in whole time attendance the nursing staff concerned operated on an 'on-call' basis.

32. The need for portering assistance to patients can vary considerably on different days of the week because the numbers of patients attending different clinics fluctuate widely, as does their need for help. Full time porters should be allocated to the department related to the work of less busy days with additional staff when necessary being provided from the general pool of porters.

33. It is not yet possible to assess the number of porters required in an Out-patient Department by means of a simple comparison with some aspect of hospital activity, for example, the number of beds, attendances or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works, as far as possible, to a defined programme (2) whether the tasks by this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere, and (3) whether in the light of the work to be done, some or all could be better done by pool porters.

34. The use of voluntary workers as Main Hall receptionists has been found to be of great help to out-patients and has saved clinic staff time. Their duties included receiving patients and making them feel welcome and at ease, answering questions, directing them or accompanying them to clinics and departments and answering the telephone.

* See the Standing Nursing Advisory Committee's Report for the Central Health Services Council issued under HM(65)70.

Accommodation

35. Waiting room accommodation should be bright and cheerful and contain attractive furniture and furnishings. A canteen service, preferably staffed by voluntary workers should be available in all Out-patient Departments. Good signposting or other directional aids such as lights and colour codes are also essential. The use of symbols may be better than written descriptions for directional notices and signposts. There should be sufficient space for the parking and manoeuvring of prams and wheelchairs. Adequate toilet facilities, clearly identified, should exist, with special provision for disabled patients. Care should be taken to ensure that the taking and handing in of specimens can be carried out without embarrassment.

36. It may be that the physical relationships of the rooms in the Out-patient Department are responsible for increasing the work of staff and causing embarrassing and unnecessary movement for patients. Abstract of Efficiency Studies No 63 describes a study as a result of which rooms were re-allocated and some minor alterations were made to the structure. The movement of patients has been reduced to the minimum and their comfort considerably increased. The staff have also benefited by the elimination of both disturbance and noise caused by the movement of patients between certain rooms.

Selective Bibliography

37. The following publications contain information about the organisation of work in Out-patient Departments:

Hospital O & M Service Reports: London. HMSO

No 1 *Out-patient Waiting Time. (Out of print.)*

No 3 *Chest Clinics.*

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 17 *Clinic Accommodation.*

No 18 *Planning Data - Movements between Clinics and Departments.*

No 63 *Clinic accommodation - fracture clinic.*

No 65 *Integration of Chest Clinics.*

No 85 *Appointments System.*

No 111 *Appointments system - Effect on Waiting List for Appointments.*

No 117 *Work in out-patient departments - the allocation of duties between trained staff, auxiliary nurses and domestic staff.*

Hospital Building Notes: London. HMSO

No 12 *Out-patient Department.*

HM(64)102 - *Management Problems in Out-patient Departments.*

Duties of Nurses in Out-patient Departments. Report of the Standing Nurse Advisory Committee (issued with HM(65)70).

In addition, the following report is being prepared for publication:

Management Services (NHS) Report No 2: *Work of Nurses in Out-patient Departments.*

Accident and Emergency Department

14

Scope

1. This section provides guidance about the organisation of work of Accident and Emergency Departments. A separate section exists for the Out-Patient Department (No 13).

Organisation

2. In 1962 the Standing Medical Advisory Committee on the Accident and Emergency Service recommended a substantial reduction in the number of accident and emergency units and a concentration of the service in a pattern of such units which would each serve populations of at least 150,000, with supporting services in other specialties and with smaller hospitals receiving less serious cases. Exceptionally, the provision of a unit for areas containing fewer people may be justified but there might be difficulty in providing a full service at all times. Co-ordination of the accident units should be a function of the Regional Hospital Boards and not of the hospitals at which the special centres for neuro-surgery, plastic surgery etc are located. The number of accident beds (including neuro-surgery, plastic surgery etc) should normally be 30 to 35 per 100,000 population but there may be areas where experience shows that fewer or more beds are needed. It is desirable that one consultant, normally an orthopaedic surgeon, should have day-to-day control of the department and that questions of policy in the organisation of the service can best be settled by a group of consultants representing the main specialties including dental surgery. The responsibility for seeing that comprehensive and accurate clinical records are kept should be with the consultant in charge of the unit. Major Accident and Emergency Departments should have radiology and pathology standby or on-call cover over 24 hours for 7 days each week.

3. Co-operation between hospitals and the ambulance services is important and hospital staffs however junior should be conversant with ambulance procedures. Every effort should be made to achieve perfect co-ordination. Direct radio or radio telephone links between ambulances and Accident and Emergency Departments should generally be provided. To avoid continuous manning of a radio in the Accident and Emergency Department a link can be provided through the ambulance control unit to any external telephone extension in the hospital.

4. In Hospital Building Note No 22 it was stated that the department should be sited so that patients coming by public transport do not have far to walk on the hospital site and those coming by car should be able to drive to the entrance. A separate entrance may exist for seriously ill patients but all other patients will normally enter through the same entrance and this should facilitate the provision of reception arrangements. Part of the main waiting space should be capable of being divided off for children so that they are shielded as much as possible from witnessing other casualties.

Working Methods

5. The possibility of economising on staff at weekends by arranging that departments which are not inconveniently distant from each other remain open in rotation, should be explored. (HM(68)83.)

6. There can, by definition, be no appointments for 'new' patients and because the incidence of these cannot be forecast, appointments made for 'old' patients can be regarded as only approximate and an elaborate system could not be justified. It is, however, possible to devise a system of calling 'old' patients in quarter hourly blocks which is simple to use and requires no clerical assistance. It is described in detail in Hospital O & M Service Report No. 1 'Old' patients appointments should be so timed to avoid peak periods of emergency work. Although these can be reasonably well defined for each authority and are likely to include morning and evening rush hours and between 10.30 pm and 2.30 am, there can be other factors which need to be considered. Apart from geographical and area occupational influences eg. heavy industry and motorways, it is not uncommon to find that the general public regard, and at times, use the department as an extension to their GP's surgery. Where the incidence of non-urgent cases endangers the true function of the department appropriate notices and publicity may be required. But while it exists due allowance has to be made for the increased workload.

7. An Accident and Emergency Register of all cases attending the department must be kept and should contain the following information:

- (1) identification details of the patient;

- (2) the name of the doctor who attends him and the time he does so;
- (3) the disposal of the case.

Paragraph 98(v) of the Report on the Standardisation of Hospital Medical Records 1965 refers. The introduction of an Accident and Emergency Record Card should be considered where it is not in use. Details of all cases involved in road traffic accidents should be recorded for the purposes of hospital charges payable under the Road Traffic Act 1960. A possible system is described in Abstract of Efficiency Studies No 114.

8. As the care of accident and emergency patients at hospitals may be transferred from one department or one medical attendant to another, instructions should be given to all members of the staff to ensure that necessary information is passed to the person in charge of the patient at each stage of his treatment.

9. The failure of proper communication between the hospital and the General Practitioner is a common source of misunderstanding and friction. The administrative arrangements should ensure:

- (1) that adequate secretarial staff is available in order that a written reply is promptly sent to any written communication;
- (2) that information about a discharged patient is conveyed to his General Practitioner by letter or by telephone with subsequent written confirmation. This should include:
 - (i) the result of relevant investigations;
 - (ii) the diagnosis;
 - (iii) the treatment that the patient has received;
 - (iv) any advice or instructions given to the patient;
 - (v) further care recommended.

10. All Accident and Emergency Departments should have standing orders with which every member of the staff employed is familiar. General guidance material for such standing orders appears in the Appendix to HM(68)83.

11. The introduction of multi-lingual written instruction forms and notices should help to reduce delays and errors which can occur in areas in which a number of languages are in common use. The use of symbols may be better than written descriptions for directional notices and signposts. Especially in hospitals situated near sea and airports and motorways it is useful to compile a list of staff and voluntary workers who can act as interpreters should the need arise.

Staff

12. HM(63)40 stated that normally, the medical staffing of Accident and Emergency units should be so arranged as to allow each unit to have three consultant surgeons in order to secure consultant cover at all times. Where however a unit is provided for a population of less than 150,000, consultant cover will be more difficult to achieve. Such units should not have less than two consultant surgeons who could undertake elective surgery in addition to accident and emergency work.

13. The report of the SMAC Sub-Committee on Accident and Emergency Services stated that below the consultant grade, there should be three officers of intermediate grade and an adequate number of

senior house officers to give a service at all times of the day and night. Every effort should be made to avoid employing pre-registration doctors in Accident and Emergency Departments. Where, for training purposes, this is thought to be desirable, the designated head of the department should arrange for close supervision. Care is necessary to ensure that duty rotas are designed and applied and that staffing provision is related to the probable demand upon the department throughout each 24 hours.

14. HM(68)83 stated that the numbers and grades of nursing staff required will depend on the operational policy, provision and layout of the department, but normally a departmental sister should be in charge and responsible for the nursing aspects of work. It is important to ensure that there are adequate supporting staff and that nurses are not carrying out non-nursing duties. The responsibility for 'sorting' patients who present themselves at a hospital into those who need hospital care and those who do not should not be placed on the nursing services; it cannot properly be carried out by other than a registered medical practitioner.

15. The need for portering assistance to patients can vary considerably on different days of the week because the numbers of patients attending the department fluctuate widely, as does their need for help. Full-time porters should be allocated to the department related to the work of less busy days, with, when necessary, additional staff being provided from the general pool of porters. To ensure that these arrangements operate efficiently it is important that all porters in the general pool should be trained in the handling of patients.

16. It is not yet possible to assess the number of porters required in an Accident and Emergency Department by means of a simple comparison with some hospital factor, for example, the number of attendances or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works, as far as possible to a defined programme, (2) whether the tasks in this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere and (3) whether in the light of the work to be done, some or all could be better done by pool porters.

Selective Bibliography

17. The following publications contain information about Accident and Emergency Departments:
- Hospital O & M Service Reports: London. HMSO
 No 1 *Out-patient Waiting Time. (Out of print.)*
 Abstracts of Efficiency Studies in the Hospital Service: London. HMSO
 No 102 *Appointments System.*
 Hospital Building Notes: London. HMSO
 No 22 *Accident and Emergency Departments.*
 HM(63)40 *Accident and Emergency Services.*
 HM(68)83 *Accident and Emergency Services.*
 HM(68)92 *Hospital Treatment of Acute Poisoning.*
Accident and Emergency Services. Report of a Sub-Committee of the Standing Medical Advisory Committee 1962.

Scope

1. For this purpose, the term Portering Services covers the conveyance of patients, information, messages, equipment, supplies and refuse, etc to and from departments. Guidance is included about the basic organisation of portering services where this extends into departments or where there is a direct relationship between the pool and departmental portering services, for example, a comprehensive messenger service. The section does not extend to inter-hospital movement nor to movement within departments.

General Considerations

2. Nearly all hospital portering work is created by the activities and requirements of other members of the hospital organisation. The basic problem is to tailor fluctuating and partially unpredictable needs to a fairly static complement of porters and yet provide an efficient and economical portering service. Portering work is of three kinds:

- (1) work which is undertaken at daily, weekly or other regular intervals;
- (2) work of an *ad hoc* nature which is undertaken as and when required and in response to requests received from anywhere in the hospital;
- (3) departmental duties - where a porter is attached to a particular hospital department.

The work at (1) and (2) above will usually be carried out by staff attached to a general portering pool. Work in category (1) should be carried out to a defined programme which must be designed to achieve the efficient deployment of staff. In category (2) it is essential to establish the degree of urgency for *ad hoc* tasks so that they can be fitted into the work programme in their proper sequence avoiding peaks of work wherever possible.

3. The quality of management is likely to have a profound influence on the standard of Portering Services provided in a hospital. The hospital administration should take a direct part in designing the organisation and methods of control: the Head Porter, with management training, should provide day-to-day control and supervision, making the best use of his staff.

4. A Head Porter needs to give particular attention to the following:

- (1) the activities of all departments and their working arrangements;
- (2) the relationship between departments;
- (3) their needs for portering services;
- (4) the nature of all portering tasks, so that he can instruct and direct the portering staff in their duties;
- (5) effective methods of doing the work;
- (6) working timetables and duty rosters;
- (7) supervision of portering staff and dealing with related personnel problems;
- (8) the establishment of effective supervisors amongst his staff.

5. The examination of the considerable volume of goods, information and equipment which is transported throughout the hospital requires a detailed study and this needs to be done before a fully co-ordinated comprehensive service can be designed. Without it, solutions which are sensible in themselves may be inappropriate in a wider context.

6. When examining the internal transport function of the portering services, it is important to ensure that all journeys are essential, that they are not unnecessarily repeated and that, so far as possible, movements about the hospital on defined routes are combined so that what has to be moved can be moved by as few people as possible. Centralised messenger services have been criticised by departmental heads as being less reliable than a departmentally provided service but this is seldom borne out in practice. Deliveries to wards and departments should be organised so that they are made at times convenient to all concerned avoiding congestion in supply rooms and corridors. It is important for a delivery and collection service to operate reliably and unobtrusively.

7. The correct selection of equipment can significantly reduce the number of journeys to be made and the amount of effort required to convey supplies and equipment. It should also contribute to a reduction in portering costs.

8. A high standard of staff morale can make an important contribution to the effectiveness of the portering services. Good management, adequate training and good staff relationships all have important roles to play in its development and maintenance.

Working Methods

9. Porter services are likely to be provided more effectively and economically if the Head Porter has the management qualities to be able to use his resources efficiently and to establish and to maintain goodwill with the members of the staff. The Hospital Secretary should be responsible for overall planning and control. These responsibilities will include taking any necessary action to ensure that the system still meets the needs of the hospital and is operating as intended. He will also have an important part to play in personnel, recruitment and training arrangements.

10. There is a tendency for regular portering tasks to be concentrated unnecessarily into the mornings, particularly into the first two or three hours of the day. Often a large number of portering staff are provided in order to meet high peaks of demand at these and other times. Wherever possible, portering tasks should be retimed to avoid peaks of activity. Some of this regular work must necessarily be undertaken at specific times, for example, the transportation of food trolleys from the kitchen to the wards. It is often possible, however, to vary slightly the times of meals in different wards so that fewer porters, making several trips each, are required.

11. The volume of *ad hoc* work is more consistent throughout the day and from day to day than is generally imagined, even though individual tasks differ in importance, nature and frequency. Porters sometimes operate on the basis that every *ad hoc* request should be met as quickly as possible whether it is necessary or not. So that the request can be given its correct priority, the originator should be asked to indicate the urgency of each request, using a simple system with classifications such as:

- (1) immediate,
- (2) as soon as possible,
- (3) early,
- (4) non-urgent.

For both routine and *ad hoc* tasks, the work should be spread as evenly as possible avoiding peaks of activity in order to make the most effective use of portering staff.

12. It is customary for porters to be engaged on only one activity at any time with the result that a ward or department may be visited by several porters in the first two hours or so of the day. Journeys are often productive in only one direction and a high proportion of the time of porters is spent merely returning to the duty room. Significant reductions in staff time are likely to accrue from co-ordination and combination of journeys.

13. The nature of hospital work is such that a proportion of unoccupied time on standby duty is unavoidable. Including night times, it has been consistently found that pool porters are unoccupied for between 40 and 50 per cent of their time. From studies carried out, it would seem that a reasonable maximum percentage may be 30 per cent and this can be achieved by better planning without detriment to the standard of service given. Abstract of Efficiency Studies No 93 describes a review of Portering work in a Teaching Hospital as the result

of which the standby time was reduced from 63.5 to 30 per cent.

14. Supervision of pool porters is more difficult to arrange than that of departmental porters whose supervision will normally be undertaken by the departmental head concerned. A deputy head porter is not justified where the total number of porters is less than 10 but is invariably necessary where the number exceeds 30. In this situation, he would assist with supervision, particularly in covering 'early and late watches' and every day of the week. There is also a case in certain large hospitals where, for example, four or more porters work in outlying buildings or where teams work on specific duties, for a charge hand porter to be appointed. The appointment of a charge hand may also be appropriate in small hospitals where the post of deputy head porter cannot be justified.

15. Adequate information and training should be given to porters about such matters as:

- (1) conditions of employment;
- (2) the layout of the hospital;
- (3) the functions of departments;
- (4) staff relationships;
- (5) the best way to carry out his work;
- (6) the best way of giving assistance to staff and patients.

A list of subjects which should be included in a training programme appears in Hospital O & M and Work Study Report No 11.

16. Training is essential for supervisory grades of porters. The training should deal with the subjects listed in paragraph 121 of Hospital O & M and Work Study Report No 11 more deeply and also including at least the elements of:

- (1) work simplification;
- (2) principles of supervision;
- (3) staff relationships;
- (4) job instruction.

The interim report of the Advisory Group on Ancillary Staff Training, issued with HM(68)96, describes the arrangements which should be made for the training of Head Porters.

17. Portering staff are required to handle, lift and transport containers of various sizes and weights. Instructions by the staff of the Department of Physical Medicine in the correct method of lifting and handling may help to avoid injuries such as back strain which occur as a result of such duties.

18. A carefully designed routine collection and delivery service can contribute much to the running of the hospital. There should be a collection and delivery time-table co-ordinated with key ward and departmental activities which should be strictly followed. The main advantages of such a service are:

- (1) errands undertaken by professional, technical, nursing and other staff are considerably reduced;
- (2) substitution of 'round trips' for point to point journeys represent a considerable saving in porters' walking time;
- (3) the need for many '*ad hoc*' calls disappears;
- (4) the regular service assists departments in planning their work;
- (5) the most economic routes can be chosen reducing the amount of time and effort.

Abstract of Efficiency Studies No 46 describes the reasons for the introduction of such a service at a particular hospital, how it was introduced, and sets out an analysis of the time saved by its introduction.

19. The frequency and type of issue of stock items directly affects the amount of portering work involved in the distribution of stores to wards and departments. Less frequent issues have been introduced in some hospitals, for example, fresh milk once per day and dry provisions at weekly intervals. Cleaning materials may be issued at fortnightly or monthly intervals. Peaks of work can be avoided by arranging for deliveries to be spread over a number of days.

20. Lodges at the entrances to hospital grounds are frequently manned by porters throughout the 24 hours of the day. The duties of lodge and gate porters may include:

- (1) safeguarding against unauthorised entry;
- (2) directing patients, visitors and callers on business;
- (3) recording the arrival and departure of goods, vehicles and ambulances;
- (4) operating a weighbridge;
- (5) supervising time clocks;
- (6) minor clerical tasks.

Generally, gate porters are very much under-occupied. Records of incoming and outgoing vehicles and of unregistered mail are seldom used and the task of directing visitors is of limited value. It is doubtful if a manned gate lodge provides any real security against unauthorised entry. The need to continue the practice should be clearly demonstrated. Abstract of Efficiency Studies No 92 describes the results of a review of gate porters.

21. Disposal of refuse takes up a considerable amount of portering time and may require as many as 70-75 hours per week in larger hospitals. Movement of dirty and infected materials within the hospital should be restricted in the interests of hygiene and to reduce the risk of cross infection. Such devices as chutes, hoists, incinerators and waste disposal machines have been installed for this purpose and also to minimise handling and transport. There is as yet no full agreement of the value of these devices in relation to their cost or effectiveness and there may be difficulties in installing them in or on existing structures. Abstract of Efficiency Studies No 19 describes the installation of chutes for refuse and used linen in an existing hospital.

22. Where hospital porters collect and transport refuse for subsequent disposal, attention should be paid to the following points:

- (1) sufficient receptacles should be provided to enable the different types of refuse to be kept separate - swill, infected materials, paper and used or broken containers;
- (2) refuse should be collected at least twice per day after peak times of accumulation;
- (3) bins, etc should not be marked with ward names as this complicates replacement arrangements;
- (4) sufficient spare bins should be provided to enable an empty for full exchange to take place;
- (5) the use of disposable paper sacks or bin linings eliminates the need for cleaning and exchange

of bins. They are lighter to handle, quieter in use and provide less risk of cross infection but have the disadvantages of being a greater fire risk and, possibly, being more expensive. Abstract of Efficiency Studies No 32 describes the circumstances which led to the introduction of paper sacks for refuse disposal in a hospital of 700 beds.

(6) large refuse hoppers can be hired from some local authorities and can reduce handling of refuse.

So far as possible 'dirty' materials should follow different routes from clean materials. They should be kept away from areas where hygiene is of the utmost importance and also from the main hospital traffic routes.

23. Night porters provide a very important service but the majority of their time, perhaps as much as 85 per cent, may be unoccupied. Some hospitals have found it possible to arrange for them to undertake cleaning duties, eg floor cleaning and polishing, where the sleep of patients and resident staff is not likely to be disturbed by the work.

24. Delivery of meals to the wards is likely to be best carried out by the general pool of porters, since the employment of sufficient kitchen porters to carry out these duties will generally involve an over-provision of staff at other than meal times. Fewer porters will be required if slightly different meal times are adopted for each ward. As the delivery of meals to patients is one of the most important tasks undertaken by the portering staff, it should be closely studied and the remainder of the porters' programme built around the needs of this activity.

Staff

25. Simple comparisons of portering needs to hospital characteristics, eg. the number of beds, do not provide a reliable guide to the number of porters needed. It is more likely that the number of portering staff can be related to units of work performed, the type and number of units ranging with different kinds of work. Much more evidence is required before the usefulness of guides of this sort can be judged. At present, an accurate assessment of the number of staff required can be based only on detailed study of the needs of individual hospitals.

26. When reviewing the number of pool portering staff employed, hospital management should obtain information about:

- (1) the tasks carried out, including any carried out in departments or on relief duties;
- (2) the length of time they require;
- (3) when they have to be carried out;
- (4) how they are being done so that it can assess whether they are being carried out in the most efficient way possible;
- (5) how the time allowed for *ad hoc* duties has been calculated and whether it has been assessed realistically.

The programme of work should provide for these tasks to be carried out with the most efficient use of staff, particularly by avoiding peaks of activity.

27. In larger hospitals of 400 or more beds, it is likely that a full-time post of mortuary porter will be needed. In small hospitals, however, this is unlikely

to be the case and the arrangements should provide for other duties to be allocated to the porter in order fully to utilise his time.

28. It will generally be necessary to arrange shift working so that all staff may share in early, late and night duties. Care should be taken to limit the manning of rotary shifts to the minimum required to cover the lightest period in the 24 hours (usually the night shift). The remainder of the day work should be covered by porters working for periods of duty, possibly including alternating shifts, which should be determined according to the needs of the programme as a whole.

29. The establishment and maintenance of a high standard of staff morale is important. Good communications between management and staff are essential, particularly where duty rotas and off-duty time are concerned. Provision of smart uniform or overalls and a comfortable and attractive duty room adequately furnished and equipped, and kept in clean and tidy condition, can also make a valuable contribution.

Equipment

30. Often, much of the equipment used by porters for the transport of supplies is makeshift and inappropriate, for example, stretcher or instrument trolleys which are used for general transport. The absence of suitable equipment often involves extra effort and time. Guidance about the selection of power driven and hand trucks appears in Hospital O & M and Work Study Report No 11, paragraphs 93 to 102. It may also be worthwhile reviewing the suitability of containers and such aids as post pouches and bags.

31. In all but the smallest and most compact hospitals, there may be advantage in using powered vehicles for transporting heavy loads, particularly in hospitals where the corridors are on a slope or where the wards are widely dispersed. Alterations may be necessary, such as widening doorways or building ramps to avoid double handling of supplies and unnecessary travel around 'obstacles'.

Accommodation

32. Diagrams of the general layout of the hospital and clear directional notices will usually result in a

reduction in the number of questions asked by staff, patients and visitors. Additional signposts should be provided in the grounds and in the main building at points where guidance is likely to be required. Descriptions of hospital departments should be given in simple, rather than technical terms. Colour codes may help to establish orientation within the hospital and the use of simple, unambiguous symbols is also worthy of consideration, especially in areas where a number of languages are in common use. Well designed symbols will also add to the appearance of the hospital.

33. The main enquiry point is usually best situated in the entrance hall of the hospital. Where sufficient space is available, the porters' duty room and the main switchboard should be sited immediately adjacent to the enquiry desk. In any event, both should be as close as possible to the enquiry desk where the duties of the officer manning the desk should include responsibility for receiving and passing on requests for general portering assistance and, during some periods particularly outside the hours of 9 am to, say, 6 pm, the task of operating the telephone switchboard. It may also help supervision if the Head Porter's office is nearby. Accommodation for hand trucks and frequently used items should also not be far away.

Selective Bibliography

34. The following documents contain information about hospital portering services:

Hospital O & M and Work Study Reports: London. HMSO

No 11 *Hospital Portering Services*.
Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 4 *Delivery of specimens to laboratory*.
No 13 *The Collection of Swill from Hospital Wards*.

No 19 *Disposal of Ward Refuse and Soiled Linen*.

No 23 *Errands by Ward Orderlies*.

No 32 *Disposal of Refuse*.

No 46 *Messenger Service*.

No 74 *Effect of Hospital Plan Forms on Labour Cost*.

No 88 *Collection of Refuse and Swill*.

No 92 *Gate Porters*.

No 93 *General Porters*.

No 107 *Improvement of Services to Patients*.

HM(68)96 Interim report of Working Party on Porters - *Training of Head Porters*.

Scope

1. This section includes guidance about the organisation of work in hospital Catering Departments. For this purpose, the term includes work in the dining room as well as work in connection with the preparation and cooking of meals. References to work which is closely associated with catering activities, such as the conveyance of cooked food to wards and the purchase, storage and issue of provisions, appears in the sections for the Portering Services (No 15), Supplies (No 8) and Stores (No 22).

Organisation

2. The organisation of a hospital kitchen is influenced by the number of patients and staff for whom meals are being produced and the pattern of feeding. The latter factor is governed at any one time, by general feeding standards and customs as applied to the particular requirements of hospitals. Over the years both standards and customs have changed and evidence suggests that the rate of change is accelerating. New techniques which are being developed and tested include:

- (1) frozen state storage with subsequent heat restoration;
- (2) plated meals service;
- (3) the use of ready prepared fresh vegetables;
- (4) continuous small batch cooking.

3. It is from these and other experiments that the future pattern of hospital catering will emerge but the conventional system is likely to remain predominant for some time to come and it is from studies of conventional systems that most of the information contained in this section has been derived.

4. The Group Catering policy should, among other matters, provide guidance about the basic organisation of the Catering Services, the roles of the Catering Officers and the standard of catering at all hospitals in the group.

5. The kitchen is presented with a number of deadlines each requiring to be met - cooked food must be available both in the wards and the dining rooms at correct times. To be too late will have a disorganising effect on the entire hospital; to be too soon would almost certainly cause the quality of the prepared food to deteriorate. To meet this challenge,

the best standard of performance has been found where kitchen management possessed a high level of organising ability in addition to culinary skill.

6. In addition to providing a choice of normal diets, the kitchen produces a range of therapeutic diets to meet the individual dietetic needs of certain patients. Kitchen work, therefore, includes the large scale production of normal diets and some individual production of therapeutic diets.

7. The kitchen, as a productive unit, is supported by a purchasing agency to provide the raw materials and distributory services to take the product to the wards and dining rooms. As a general rule, kitchen staff should not be engaged in the supporting functions, although some participation by cooks in dining room service is claimed to be justifiable.

8. In a hospital kitchen serving about 600 beds, with a high standard of management, using an extensive but not exclusive range of fresh foods as distinct from convenience foods, with a menu choice and bulk distribution to wards, the total staff time is likely to be spread over the main kitchen activities as follows:

	%
Provisioning	5
Preparation	35
Cooking	15
Dishing up	8
Cleaning	25
Administrative and Clerical Work ..	7

9. One main kitchen should serve all the requirements of a hospital. The limitation of a 1,500 mid-day meals maximum for a kitchen is no longer applicable. Kitchens of up to 2,000 mid-day meals are now being planned for the larger District General Hospitals and even in Teaching Hospitals providing up to 4,000 mid-day meals the only division between patients and staff meals is in the cooking and service part of the kitchen. All preparation areas are common to both.

10. Large scale frozen food systems in hospitals are still in the experimental stage. Their costs of operation and the management problems which arise from their introduction have still to be evaluated.

11. A Building Bulletin about hospital kitchens which will discuss the advantages and disadvantages

of such catering practices as centralised tray services, is being planned.

12. Normally, only one dining area should be provided and this should operate on a cafeteria service basis, although it may be necessary to arrange for a priority service for those who, exceptionally, require meals without delay because of official commitments. A waitress service may be provided but an extra charge should be made to cover the cost of the additional staff needed. To provide maximum flexibility to meet changing demands, the waitress service should be in part of the main dining-room separated by non-permanent partitioning.

13. Ideally, the dining-room should be on the same level as, and immediately adjacent to, the central kitchen.

14. In May 1964, hospital authorities were informed of the costings for the Department's recommended scales of food for Acute and Psychiatric Hospitals catering for more than 275 people. Subsequent changes, month by month, in the Hospital Price Indices for Provisions, and resulting changes in the upper and lower limits of the scales are notified to Regional Hospital Boards and Boards of Governors by the Department at six-monthly intervals.

Working Methods

15. Good organisation and adequate supervision of work are essential features of all efficient hospital kitchens. Whilst the basic organisation is the responsibility of the most senior staff, if supervision is to be effective, it will form an important part of the duties of Kitchen Superintendents, Head Cooks and Assistant Head Cooks. The time spent in management is likely to be of the order of 40 per cent of the total hours of work of skilled staff. The following percentages of the time of individual grades are likely to be needed to maintain adequate control and supervision:

					%
Kitchen Superintendent	..	..	..	..	30
Head Cook	..	..	..	..	15
Assistant Head Cook	..	..	..	..	6
Cook	..	..	..	..	6

16. Under schemes which relate pay to productivity, it is likely that the proportions of time spent by the grades of staff, referred to previously, on 'management' will be higher. This is particularly so where the type of scheme being operated is either a measured day-work scheme or a productivity scheme. It is not yet possible to say how much more time would be spent in managing kitchen work but it is quite clear that more planning and effective supervision is needed if kitchen work is to be so organised as to enable staff to attain the performance targets that will be set.

17. In some hospitals, meat is bought in joints and preparation work is kept to a minimum whilst in others, carcass meat is bought and full scale butchery departments are in operation. In a kitchen serving a hospital of about 300 beds, the creation of a separate butchery is likely to be expensive; any saving resulting from the purchase of carcass meat is more than

lost by the cost of employing a butcher. Larger scale production may result in the provision of an economic service but a study of the feasibility and economics of operating a group or area butchery will be necessary before this can be established.

18. A number of hospitals still operate bakeries producing bread for a group of hospitals or for one hospital only. The main advantage claimed is that the quality of bread is superior to that obtainable elsewhere. The Specifications Working Group on Cereals and Cereal Products recommended that hospital authorities operating their own bakeries should examine costs and should continue production only where the costed price of the article is comparable with outside contract prices. Where considerable financial outlay for renewal of major items of equipment is required, serious consideration should be given to the discontinuance of the production of bread.

19. More information is required about the practicability of purchasing ready prepared fresh vegetables. Only a handful of schemes appear to be operational and the best that can be said is that while they appear to be promising it is too soon to assess their validity and acceptability. If their use proves to be acceptable, consideration should be given to their operation by the hospital service on a group or area basis.

20. Comprehensive portion control is the most effective way of controlling provisions costs and needs to be exercised in three stages:

(1) Purchase - on the best estimate of possible requirements.

(2) Preparation - by the use of standard recipes and the issue of food to cooks in the correct quantities based on the recipes and the numbers known to require each dish (from choice of meal system).

(3) Issue - portion control when cooked food is provided to wards and dining rooms. Control is relatively simple where readily identifiable portions exist, eg. chops, sausages, but quantities of vegetables, some puddings, etc are more difficult. In these circumstances ladles, scoops and other similar devices related to the portion size should be used.

21. Work in connection with the receipt, custody and issue of food to the kitchen will normally be the function of the senior cook on duty. It is important to ensure that the food supplied to the kitchen is checked for both quality and quantity. Similarly, there must be adequate control of the issue of food which should be based on menu requirements and the number of staff and patients to be fed.

22. Preparation work which includes highly skilled meat preparation as well as unskilled vegetable preparation accounts for some 35 per cent of total kitchen work. It is important that staff with the necessary level of skill should be employed on preparation work if the work is to be done without the level of waste being unnecessarily high. Adequate supervision and the correct use of preparation aids will also help to keep the amount of waste to a minimum. Batch cooking, by ensuring freshness and maintaining nutritional values, also contributes to the reduction of waste. Abstract of Efficiency

Studies No 20 discusses a number of ways in which potato peeling arrangements can be improved to minimise waste.

23. The maximum acceptable level of food waste in hospitals is between 7 and 10 oz per person fed per day. The Catering Officer should arrange for periodic checks to take place to assess the amount of waste so that any necessary action can be taken. Abstract of Efficiency Studies No 47 describes one study in which the amount of waste was found, on average, to be 20oz per person per day. The weight of swill, however, can be exaggerated by the inclusion of excessive liquid, tea leaves, etc and may also include waste from food brought into the wards by visitors. Some care is necessary, therefore, before applying weight of swill as a measure of catering efficiency.

24. Therapeutic diets produced individually are several times more costly in staff time than therapeutic or normal diets produced as part of the main kitchen output. The menu should be planned jointly by the Catering Officer and Dietitian to ensure that dishes suitable for the majority of therapeutic diets can be selected from the main menu. Foods obtained from the main kitchen may need special treatment in a diet bay for a few types of diet, but diets needing completely separate preparation and cooking are very few indeed and, except in teaching or specialised hospitals, are likely to be required only occasionally.

25. A variety of means of identifying diet containers is used in hospitals, such as chalk marks and plastic labels, not all of which are satisfactory. The use of a standard colour code, such as that developed by the Department of Health and Social Security, should help to avoid confusion where different practices exist within the same hospital or between hospitals. Self-adhesive coloured labels containing the description of the diet, are available from HM Stationery Office (see Abstract of Efficiency Studies No 129).

26. The loading of food into trolleys and other containers is normally undertaken by skilled staff and checked by the Kitchen Superintendent or Head Cook to ensure that the quality and quantity of food are correct. Savings in labour can be achieved by more attention to the selection of inner containers for trolleys. If the containers are obtained as subdivisions of a standard size and in three different depths (5in, 3in and 1½in), they not only fit more economically into the trolleys, but enable some dishes to be cooked and served in the same utensil (saving time and washing up). The containers can also be used to control production and service, as requirements can be made up of units with a number of portions. The despatch of the trolleys should take place at the proper time and should be part of a programme of kitchen work which should aim to minimise the time between the production of the food and the service to patients and staff.

27. Meals should look attractive and appetising when served to patients and it is therefore important that losses of heat and nutritional value must be kept to the absolute minimum. In hospitals with widely dispersed ward units, the use of powered tugs can help to minimise delivery times.

28. Whether the delivery to and collection from the wards of food trolleys is carried out by kitchen or

pool porters, must be decided in the light of local circumstances. It is rare, however, for there to be enough portering work within the kitchens to justify the employment of more than one or two porters and to provide sufficient porters to deliver meals to the wards usually results in the employment of otherwise unnecessary porters. For this reason, the work is usually carried out by pool porters. Staggering the times of meals in different wards will enable the work to be carried out by fewer staff. It should also ease the organisation of work in the kitchen.

29. Cleaning work in kitchens should be carried out to a planned schedule and generally should be undertaken by unskilled staff. The cleaning of working surfaces during preparation work, however, should be carried out by the skilled staff concerned. In most hospital kitchens there are sufficient straight runs to justify the use of mechanical floor cleaners, augmented by mops to cope with areas inaccessible to the machines. The use of suitable mechanical aids to clean pans and utensils can also reduce time and effort.

30. Most of the clerical work should be undertaken by staff in the Catering Office and only those clerical duties concerned with the direct administration of the kitchen should be performed by the kitchen staff. These include:

- (1) preparation of duty rosters, work lists and cleaning schedules;
- (2) preparation of requisitions for supplies;
- (3) labelling of diet tins.

In particular, there is no need for kitchen staff to be involved in summarising patients' meal requisitions. Experience has shown that patients are more likely to get what they want and the time of ward staff is saved, if patients make their own choice on menu cards. Such cards are, of course, essential with any form of centralised tray service.

31. Micro-wave cooking has been introduced in some hospitals to cater for night staff where numbers per oven are small (not more than 30 or 40) and attendance is staggered over a meal period of one hour. Guidance to hospitals on the use of micro-wave ovens is being prepared in the Department.

32. A snack bar providing simple hot and cold snacks may have a useful part to play. As a separate unit, the snack bar need not be sited in the dining-room complex and, in a hospital occupying a large site, there are advantages in providing these facilities in a position where they can be used for between-meal beverages for those staff who work at a distance from the main dining-room. Automatic vending machines may be worthy of consideration. Distribution of refreshments by trolley or on trays from the dining-room is likely to be expensive, especially if crockery is washed up by the dining-room staff.

33. Where meals are served continuously (say between 12.00 and 1.30 pm) it is usually unnecessary to allocate attendance times to avoid overcrowding as staff adjust their arrival times to avoid peak periods of demand.

34. The Catering Officer or his deputy should visit the dining-rooms and wards frequently to receive any comments the staff and patients wish to make about the catering services. In some hospitals, it is

the practice to arrange for the Kitchen Superintendent or the Head Cook to accompany the Catering Officer at intervals of about once a week as a means of bringing together the kitchen staff and the users of the service.

35. The centralisation of washing up facilities is likely to produce economies in cost and effort. Capital costs can normally be recouped within one to two years. Generally, significantly fewer staff are required to maintain the services. Studies also have shown that:

- (1) an agreed standard of hygiene can be introduced throughout the hospital and controlled;
- (2) the noise of washing up in the wards is eliminated;
- (3) the crockery breakage rate has been reduced;
- (4) the amount of detergent used has been reduced.

36. Where insufficient space is available for full centralisation, it is likely to be worthwhile considering the introduction of machine washing facilities for a number of wards. Where an arrangement of this type is contemplated, the following points should be borne in mind:

- (1) the machine should be equipped with a temperature booster tank unless the temperature of the hot water system is 180°F;
- (2) the machines should preferably be equipped with a device to prevent interference by staff with their cycle of operations;
- (3) efficient scraping of dishes is absolutely necessary;
- (4) dishes should be rinsed before insertion if finely chopped vegetable matter forms part of a meal;
- (5) sufficient crockery racks should be available to avoid waste of operator time during machine cycle times;
- (6) a wetting agent will assist smear-free drying.

Staff

37. Previous studies have shown that a simple count of meals produced have provided an accurate evaluation of the workload of hospital kitchens. Staffing ratios, calculated at normal performance, are accordingly based on this conclusion and the graphs for all kitchen work and for skilled and unskilled staff appear as an appendix to this section together with instructions about their use. These staffing ratio graphs should be used in accordance with the guidance provided but it should be noted that during the course of the studies, the pattern of meals consumption by staff began to change following the introduction of 'Pay As You Eat' schemes. It was therefore necessary to devise, as a temporary measure, a conversion factor for that part of the workload concerned with providing meals under these schemes. The application of this factor may introduce slight inaccuracy into the calculation of total meals produced but nevertheless it will provide a reasonably accurate guide for use with the graphs. A detailed report on hospital kitchen work is being prepared for publication in the Management Services (NHS) series and will include staff ratio graphs on bases which accurately reflect workload.

38. Unskilled work in the kitchen will be undertaken by kitchen porters and domestic assistants normally under the direct supervision of the Kitchen Head. If the kitchen workload exceeds 40,000 meals a week, the immediate supervision might best be provided by a working chargehand, who might be either a porter or a domestic assistant. The chargehand would be responsible for ensuring that the correct standards are maintained and that the working hours of the unskilled staff are related to the needs of the kitchen. In older kitchens where the weekly meals production is between 30,000 and 40,000 and the layout of the working sections is such that the Kitchen Head, in addition to his other responsibilities, would find difficulty in giving as close attention to unskilled work as is necessary, the appointment of a chargehand might also be justified.

39. The production of prepared food at precisely the correct time, and with the most effective use of staff, will generally require a system of shift working. A system which was found to work satisfactorily in a hospital kitchen producing 15,000 meals per week was as follows:

- (1) Cooking staff
 - (a) early shift 6 am to 2 pm;
 - (b) late shift 12 noon to 9 pm.
- (2) Domestic Assistant - 7 30 am to 4 30 pm.
- (3) Portering Staff - either 7 am to 4 pm or 8 am to 5 pm.
- (4) Night Staff - normally 9 pm to 7 am.
- (5) Kitchen Head and Deputy (without sectional responsibilities) should usually take turns in working different shifts.

Some staff will need to be brought on at 8 am and others at 10 or 11 am if the peak workload is to be adequately covered without overstaffing early or late.

40. The times of starting and finishing shifts may vary from hospital to hospital according to local conditions and the extent to which part-time staff are employed may also influence the precise shift arrangements. However, any significant variations from the above could well mean a failure to match the provision of staff to the workload, changing as it does throughout the day.

41. Although the number of unnecessary errands to the wards and departments by kitchen staff can be reduced by more careful planning, it is unlikely that they can all be eliminated. The number of errands, however, should not normally exceed a rate of 20 errands per 100 beds per week.

42. 'Hospital Catering', HMSO 1962, suggested that the staffing of dining-rooms depended on the type of service provided. It was envisaged that a cafeteria service needed approximately one staff to every 30 diners, semi-waitress service 25 per cent more and full waitress service some 50 per cent more. These staffs were to be sufficient for all duties - service, washing up and cleaning. This guidance is still appropriate provided that some adjustment is made for the reduction in the working week from 44 to 40 hours.

Equipment

43. Studies of preparation aids, which save many hours of staff time, have disclosed that, in general,

there is a low level of utilisation. Throughout the Hospital Service there is a considerable number of these machines, representing a substantial investment, which are not being used for much of the time. When replacements are required, consideration should be given to the purchase of multiple purpose machines.

44. Handling aids, such as portable vegetable tanks, trolleys and portable racks, should be used where their absence would involve double handling with its inherent demands on time and effort.

45. If ovens are positioned at or slightly above floor level, staff will have to stoop and lift containers of food, often heavy and frequently hot. Staff generally prefer ovens at a height some 3 or 4 feet above floor level but this arrangement may not be practicable because of the extra space required. Injuries can be prevented if the staff of the Department of Physical Medicine instruct kitchen staff in the handling and lifting of containers.

46. Where planned preventive maintenance is in operation, electrical and mechanical kitchen aids should be included in the maintenance programme. For example prompt replacement of worn carbondum plates can contribute to the efficiency of operation of potato peeling machines. Abstract of Efficiency Studies No 20 indicates, amongst other things, the effects that worn plates have on their operation. Complex machinery, eg. micro-wave ovens, should be regularly serviced by manufacturers on contract rather than by hospital staff.

Accommodation

47. The kitchen should preferably be on the ground floor with staff dining rooms on the same level. The bulk stores area should be easy to approach, clearly defined and with adequate turning space. Good natural light and ventilation is very important. The position of the kitchen should enable food to be delivered to the patients as soon after cooking as possible.

48. The layout of the kitchen and the siting of its working areas should be designed to achieve a good flow of work. Distances between successive processes should be kept to the minimum whilst retaining an adequate amount of space to enable the process to be carried out. The following examples of inefficient arrangements were observed during detailed studies of hospital kitchens:

(1) areas outside the main cooking area, eg. larder, vegetable preparation room, cold room and diet kitchen were all separated from the main cooking area by internal corridors making communication between areas difficult;

(2) the food store and larder were too remote from the main kitchen area. The refrigerated meat store was a considerable distance away from the cold room and meat preparation area;

(3) prepared food had to be moved some considerable distance when loading food trolleys. In some hospitals, there were no trolley bays and, as a result, trolleys were housed in passage ways;

(4) the pan and utensil wash area was too small and access was poor. In another hospital, this wash area and the bakery were in the same room;

(5) the main kitchen area was too large for the amount of work being undertaken and a more compact kitchen would have reduced the amount of staff movement.

Selective Bibliography

49. The following publications contain information about the organisation of work in hospital Catering Departments:

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 20 *Preparation of food - potato peeling.*

No 21 *Serving of Staff Meals - Centralised cafeteria system.*

No 45 *Stores Issues.*

No 47 *Food Waste.*

No 81 *Service of meals to wards.*

No 101 *Patients Choice Menu System - Clerical Procedures.*

No 113 *Planning a Ward Waitress Service.*

No 124 *Work in Kitchens - The Most Time Consuming Activities.*

Hospital Building Notes: London. HMSO

No 10 *Hospital Kitchens.*

No 11 *Dining Rooms.*

Hospital Catering. HMSO 1962.

Interim Report of the Specifications Working Group on Cereals and Cereal Products. DHSS.

Studies of the Cost of Food in Acute Hospitals Catering for more than 275 people. Ministry of Health 1964.

In addition, the following report is being prepared for publication:

Management Services (NHS): *Study of work in Hospital Kitchens to determine staffing ratios.*

Appendix

How to use Kitchen Staffing Ratio Graphs

1. The graphs provide a means of determining the hours of kitchen staff time needed to undertake any given workload between 5,000 and 40,000 meals produced per week. The staffing ratios relate to acute hospitals where catering arrangements include the following characteristics:

- (1) The average number of meals produced each week is between 5,000 and 40,000.
- (2) Most food is bought fresh and requires preparation.
- (3) Cooked and prepared food is distributed in bulk and is not plated in the kitchen.
- (4) A menu choice system is in operation.

2. The calculation of weekly average numbers of meals produced should be by reference to a period which will reflect the current workload. Ideally, this period should be over the last 12 months, but where significant changes in the kitchen output have occurred within the last year it will be necessary to take these into account. In these circumstances a period of less than 12 months may produce a more realistic average but care must be taken to avoid distortion by a disproportionate emphasis on seasonal variations in kitchen work.*

3. The meals to be included are:

- (1) Breakfasts
- (2) Lunches
- (3) Suppers
- (4) Other meals which involve the kitchen staff in a significant amount of work. For example, special functions, requiring the preparation of substantial meals, should be included in the workload, whereas light refreshments (eg. coffee and biscuits) should not.

4. By reference to the vertical scale of the graph selected, the appropriate 'numbers of meals' point should be projected horizontally to the graph line and at the point of intersection a vertical projection should be made down to the horizontal scale which will indicate the 'hours per 100 meals' of staff time required to undertake the workload. The total hours can then be calculated by multiplying the ratio (ie. hours per 100 meals) by the appropriate 'numbers of meals' and dividing the product by 100.

5. To equate the total hours of work with the total hours of staff time needed to undertake this work, provision must be made for annual and sick leave. To the total hours of work calculated as in paragraph 4 an addition of 10% should be made.

6. The calculations described in paragraphs 4 and 5 above can be expressed as the following simple formula:

$$H = \frac{MR}{100} + 10\% \text{ of } \frac{MR}{100} \text{ or } \frac{11MR}{1000}$$

Where H = total hours of staff time required.

M = average number of meals produced per week (vertical scale of graphs).

R = hours of staff time per 100 meals (horizontal scale of graphs).

7. To simplify the production of the staffing ratio graphs certain grades of staff have been grouped together under a single heading, eg. the graph lines headed 'cooks' include all skilled grades with the exception of assistant cook; the graph lines headed 'unskilled staff' include kitchen maids, domestic assistants and kitchen porters. In the following table the particular graph categories into which each grade has been placed is shown by means of asterisks. An assistant head cook, for example, is included in (1) the total staff ratio graph, (2) the skilled staff ratio graph and (3) all other ratio graphs having a graph line headed 'cooks'.

GRADE	Staffing Ratio Graph Categories			
	Total Staff	Skilled Staff		Unskilled Staff
		Cooks	Assistant Cooks	
Catering Officer or Assistant	*	*		
Dietitians	*	*		
Kitchen Superintendents or Head Chefs	*	*		
Assistant Kitchen Superintendent or Assistant Head Chef	*	*		
Head Cook or Assistant Head Chef	*	*		
Assistant Head Cook or Sectional Chef	*	*		
Butcher	*	*		
Cook-in-charge	*	*		
Cook or Diet Cook	*	*		
Assistant Cook	*		*	
Apprentice Cook		excluded		
Domestic Assistant or Kitchen Maid	*			*
Kitchen Porter	*			*
Trainee Catering Officer		excluded		
Nursing Cadet		excluded		

* Meals Count

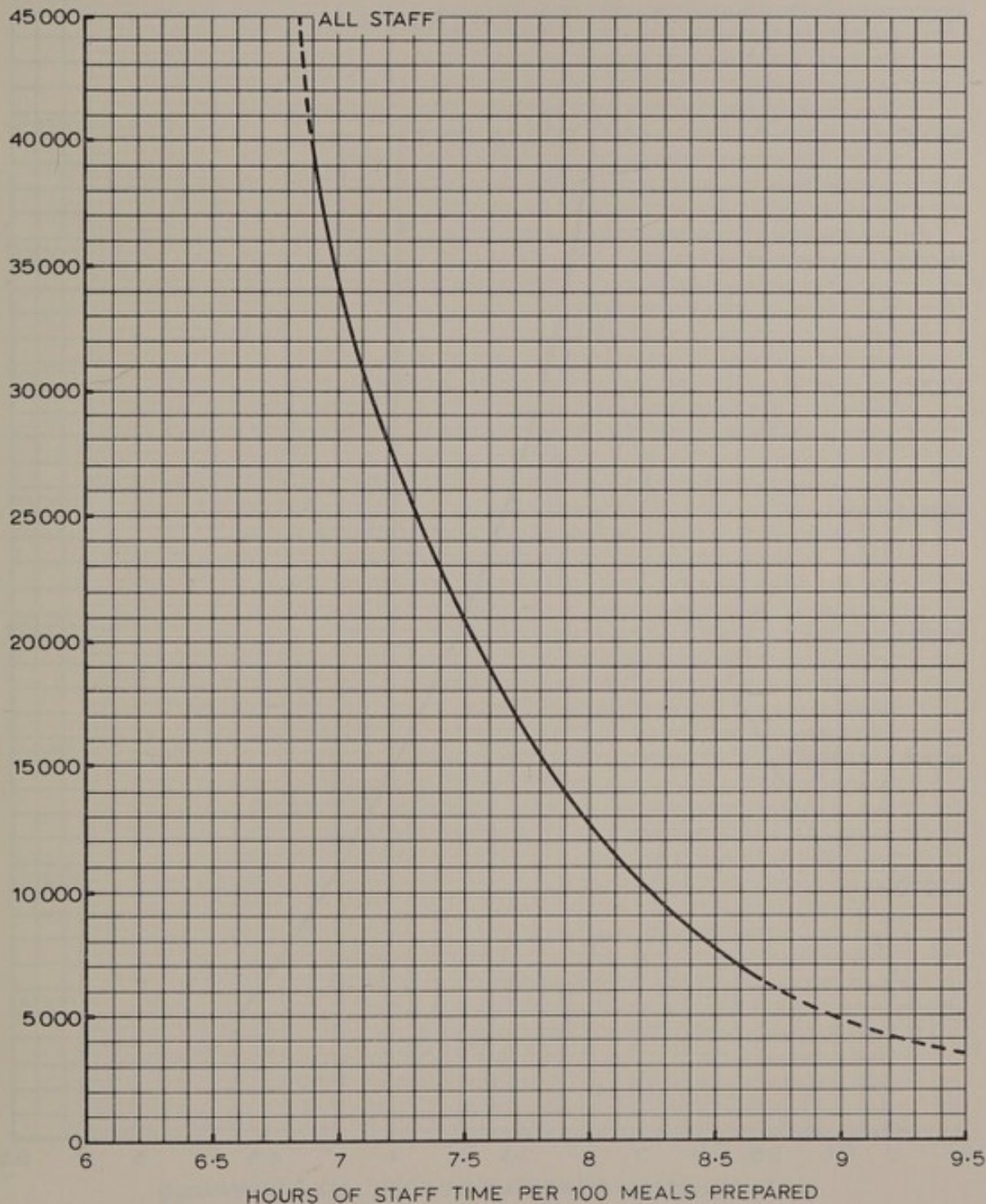
During the course of the study, the pattern of meals consumption by staff began to change following the introduction in hospitals of Pay As You Eat. For costing purposes, weekly cash takings in respect of staff meals are divided by a sum (£2 13s 8d 1/4/70 -

31/3/71) to produce the number of staff fed per week. For the purpose of using these graphs therefore it will be necessary to convert the number of staff fed per week into the number of meals per week provided for this category of consumer by multiplying by a factor of 21.

STAFFING RATIO GRAPH
TOTAL KITCHEN WORK

No. 1

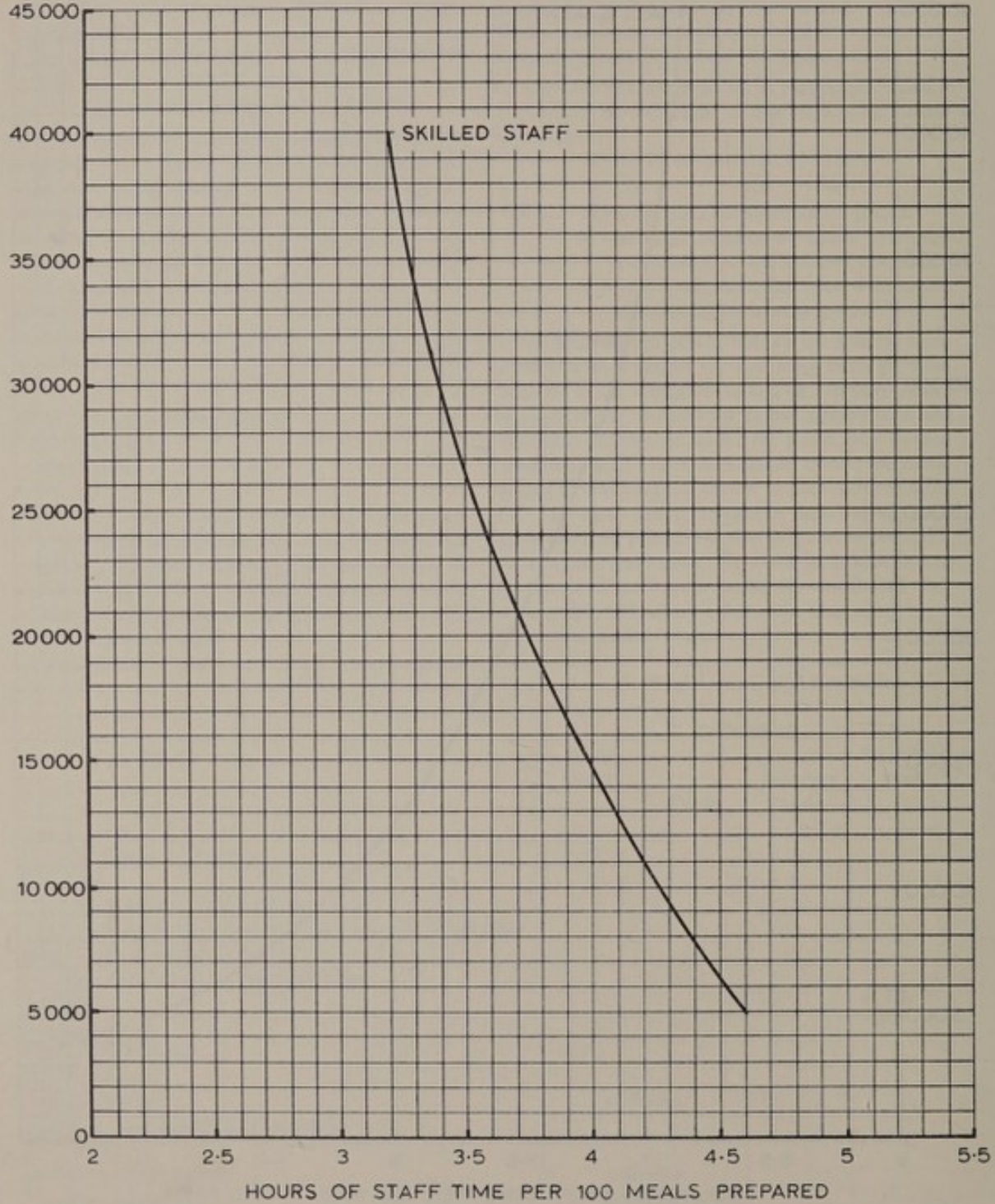
NUMBERS
OF MEALS
PREPARED
IN AVERAGE
WEEK



STAFFING RATIO GRAPH
TOTAL KITCHEN WORK

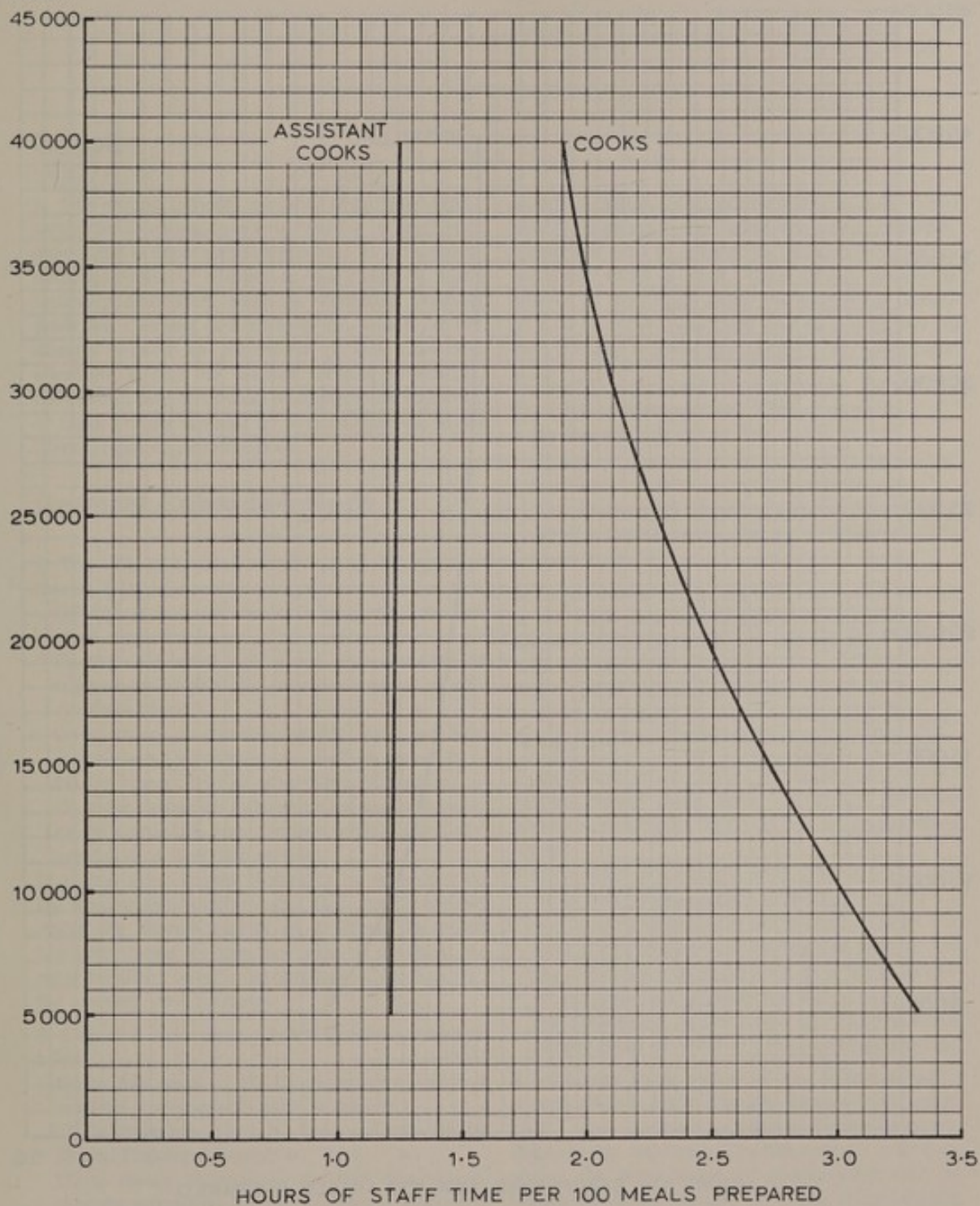
No. 2

NUMBERS
OF MEALS
PREPARED
IN AVERAGE
WEEK



STAFFING RATIO GRAPH
TOTAL KITCHEN WORK

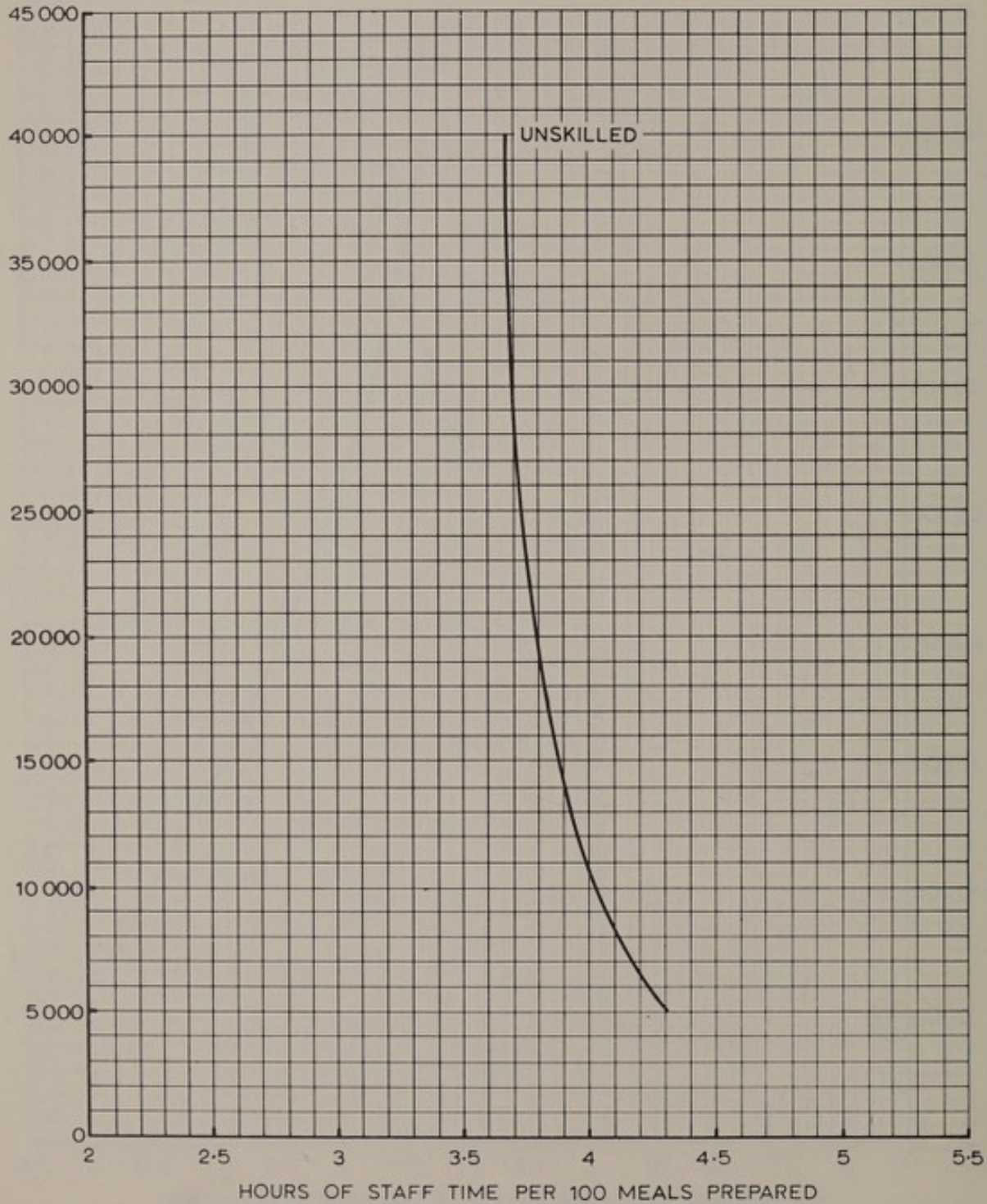
No. 3

NUMBERS
OF MEALS
PREPARED
IN AVERAGE
WEEK

STAFFING RATIO GRAPH
TOTAL KITCHEN WORK

No. 4

NUMBERS
OF MEALS
PREPARED
IN AVERAGE
WEEK



Scope

1. This section provides guidance about the organisation of Domestic work in wards, in staff residences and in departments and offices. In this context domestic work is defined as the range of tasks normally associated with the domestic assistant grade (eg. cleaning and washing-up), which are not directly related to individual patient care and attention. It does not include services to patients, the use and care of medical equipment, clerical work or tasks usually covered by Ward Orderlies, Ward Clerks, Nursing Auxiliaries etc.

General Considerations

2. The main considerations governing the organisation of Domestic services are the need to develop:

- (1) appropriate standards of hygiene for each ward, department and staff residence;
- (2) methods which will enable this standard of hygiene to be provided using resources as efficiently as possible;
- (3) cleaning programmes which cause as little disturbance to patients and staff as possible;
- (4) the correct level of supervision of the work;
- (5) close liaison with departmental heads in order to be aware of any changes which affect the provision of domestic services.

Domestic work should preferably be organised on the basis of the hospital rather than the Group but under the overall control of a Group Domestic Manager. Some services may well be provided for some buildings outside the curtilage of the hospital, for example staff residences.

3. Domestic management has a threefold responsibility:

- (1) to take part in the development of efficient working arrangements and procedures;
- (2) to train employees in co-operation with the Group Training Officer;
- (3) to ensure, through on the spot observation, that the procedures are being properly supervised and carried out.

4. Sound arrangements for training and supervising the staff are the key to efficient management of the work. Control of the whole of the domestic force in each hospital should be concentrated under one person, normally the Domestic Superintendent, to

permit standardisation of methods, to ensure that agreed standards are effectively and efficiently maintained and to achieve the utmost flexibility in the deployment of staff. Ward Sisters should be relieved of the responsibility for supervising domestic staff to allow them more time to concentrate on their nursing, training and administrative functions.

5. Benefits are likely to accrue by the central provision of some services. These include:

- (1) washing-up;
- (2) heavy cleaning such as floor maintenance, washing of walls, windows, door frames etc;
- (3) messenger services to wards and departments;
- (4) distribution of supplies on a top-up or daily quota basis.

6. In the first of these, work is removed from staff in the ward area and departments and in the remaining three, resources are directed from outside to work inside the department. Central Services which operate within ward areas should be sensitive to ultimate control by ward management although direct supervision should be imposed centrally.

7. In recent years various forms of ward house-keeping teams have been introduced in some hospitals. Generally, they take one of the following forms:

- (1) a team of domestic staff directly supervised by a Ward Housekeeper, providing services for one or more wards, and responsible for duties of a domestic nature such as cleaning and washing-up;
- (2) a team directly supervised by a Ward Housekeeper, providing services for one or more wards and responsible for the duties in (1) above, and a further range of duties of a non-nursing character.

8. Although some studies of the effects of introducing Ward Housekeeping Teams have taken place, more evidence is required before firm conclusions can be drawn. The Department is investigating the organisation of non-nursing work in wards, including the use of Ward Housekeepers, and a report will be published in due course.

9. The provision of Domestic Services by commercial firms is likely to be more expensive than directly employed staff and generally requires a significant degree of liaison-work. This alternative should only be considered in exceptional circumstances, for

example, when the hospital is unlikely, over a prolonged period, to be able to recruit sufficient staff.

Working Methods

10. Studies have shown that four main tasks account for 80 per cent of the time spent on ward domestic work. These are:

Cleaning and polishing floors	approx.	30
Washing up crockery	"	25
Washing or scrubbing floors, walls, baths, sluices etc	"	15
Dusting and polishing	"	10

It is in these spheres of work, that improvements will produce the most worthwhile savings in time and effort.

11. Suction cleaners are now standard equipment in all hospitals. They should be equipped with filters to reduce the ejection of dust and bacteria and their size should be appropriate to the area(s) in which they are to be used. In all but a few areas the larger industrial models will be appropriate.

12. Where hand sweeping is unavoidable impregnated mops of appropriate size should be used.

13. The first (main) cleaning of ward floors each day should normally be deferred until bed-making and breakfast are finished to avoid duplication of the task. Further (partial) cleans should be integrated into the ward work in the early afternoon and evening.

14. Plastic floor seals are likely to be economical but may require the temporary closure of the ward or department. The type of seal will need to be selected with regard to the type of flooring and the need for easy and minimum maintenance. Guidance for Domestic Superintendents on the method, frequency and materials needed to maintain floor surfaces can be obtained from the Regional Adviser on Domestic Management.

15. The centralisation of washing-up facilities is likely to produce economies in cost and effort. Capital costs can normally be recouped within one to two years. Generally, significantly fewer staff are required to maintain the services. Studies also have shown that:

- (1) an agreed standard of hygiene can be introduced throughout the hospital and controlled;
- (2) the noise of washing-up in the wards is eliminated;
- (3) the crockery breakage rate has been reduced;
- (4) the consumption of detergent has been reduced.

16. Where insufficient space is available for full centralisation, it is likely to be worthwhile considering the introduction of machine washing facilities for a number of wards. Where an arrangement of this type is contemplated, it should have the following characteristics:

- (1) the machine should be equipped with a temperature booster tank unless the temperature of the hot water system is 180°F;

(2) the machines should preferably be equipped with a device to prevent interference by domestic staff with their cycle of operations;

(3) efficient scraping of dishes is absolutely necessary;

(4) dishes should be rinsed before insertion if finely chopped vegetable matter forms part of a meal;

(5) sufficient crockery racks should be available to avoid waste of operator time during machine cycle times;

(6) a wetting agent will assist smear-free drying.

17. Where hand washing-up is unavoidable:

(1) the temperature of the rinsing water must be maintained at least at 180°F;

(2) crockery should be placed in racks after washing ready for rinsing;

(3) the crockery should remain in the rinsing water long enough to accumulate sufficient heat to air dry properly;

(4) after rinsing crockery should be left in the collection grid to air dry without wiping with tea cloths. Cutlery and glasses may however need wiping to prevent spotting with moisture droplets;

(5) crockery should be retained in racks when placed in closed cupboards to avoid unnecessary handling.

18. Other useful suggestions associated with washing-up which might be made are that:

(1) all crockery and cutlery should be collected before washing-up is started;

(2) sinks, draining boards and cupboards should be within the BSI standard range of heights;

(3) preference should be given to the use of disposable paper tea towelling for drying items which do not air dry satisfactorily.

19. Scrubbing machines and mechanical suction dryers should be used in large unobstructed areas. Cellular sponge mops are useful for damp and wet mopping smooth floors, for example, of rubber and vinyl composition. Most floors which are required to be washed daily will not require scrubbing except to remove isolated patches of impacted dirt. Where machines cannot be used, washing should be done using a cellular sponge mop (with scrubber attached for occasional use as necessary). A detergent/bactericide should be used in the water to prevent cleaning equipment becoming germ infected. Harsh detergents or abrasives should not normally be used. A neutral liquid detergent is suitable for most areas.

20. Suction sweeping of floors will reduce the amount of furniture dusting required. Hand dusting should be done with damp or impregnated dust absorbing disposable dusters. When high dusting is done by suction cleaner special care should be exercised to prevent the knock down of dust. An alternative method is the use of an impregnated mop.

21. Polishing should be kept to a minimum to avoid unnecessary effort. Studies have shown that some ways this can be done are to:

- (1) use furniture and fittings which do not require polishing. It may be possible to cover or paint existing fittings to avoid the need for polishing;

- (2) establish the correct frequency of polishing where this is unavoidable;
 - (3) consider the use of aerosol polishes.
22. The advantages claimed for centralised bed cleaning services are that they:
- (1) help to combat cross infection;
 - (2) relieve staff of work at their busiest times;
 - (3) remove some noise producing processes from the ward area;
 - (4) enable cleaning and disinfection to take place more efficiently;
 - (5) reduce the ward storage requirements for bedding and linen.

They do however:

- (1) produce a significant increase in traffic;
 - (2) require significant amounts of staff time to convey beds between the centre and the users;
 - (3) require a float of spare beds.
23. No studies of central bed cleaning services have taken place in this country but information collected from studies in European countries suggest that:
- (1) not all anticipated reductions in staff have materialised. Increases in staff are not uncommon;
 - (2) isolation and children's wards cannot readily be provided with the service;
 - (3) about 0.5 sq.yd. per bed would be required for a service restricted to the beds of discharged patients;
 - (4) about 30-36 hours would be required to make, strip and transport 60 beds.

24. Departments and offices should be cleaned either in the early morning or late evening when they are empty. The employment of part-time staff on this work is likely to be appropriate.

25. Adequate supervision of staff by Domestic Supervisors should be provided to ensure that specified cleaning procedures are correctly followed and that the agreed standards of hygiene are maintained. The main responsibilities of supervisors are:
- (1) confirming that staff are following agreed methods;
 - (2) ensuring that work has been performed to a satisfactory standard;
 - (3) giving extra supervision to staff on relief duties;
 - (4) controlling the use of materials and equipment in the working area;
 - (5) examining equipment in use for effectiveness;
 - (6) training new staff;
 - (7) liaising with departments;
 - (8) providing detailed supervision of infrequent, long or intricate work.

Staff

26. Detailed studies of domestic work in general medical and surgical wards in acute hospitals have shown that with efficient methods and management and staff working at a normal rate, good standards of work in the range of duties of the domestic assistant grade will require 52 hours of staff time per week for a 30 bedded open ward of 3,000 sq. ft. where centralised services as set out in paragraph 5 exist. When annual and sick leave is taken into account, this is roughly equivalent

to 1½ posts. If some of the centralised services are performed by ward domestic staff the 52 hours is increased as follows:

- Washing-up - 14 hours per week
- Heavy cleaning - 12 hours per week
- Linen supplies - 2 hours per week

27. The time spent running messages and errands has been found to vary considerably between wards and it has not been possible to produce typical figures. It is however likely that a central messenger service would be able to undertake at least two thirds of all messages and errands arising from ward work.

28. In modern 30 bed units conforming to Hospital Building Note No 4 with a total floor area of around 9,000 sq.ft., 100 hours of staff time per week will be required. This is broadly equivalent with allowances for annual and sick leave to 2½ posts. Additional staff will be required on the ward if centralised services do not exist and with the exception of heavy cleaning, the increases specified above will be appropriate. For heavy cleaning in these circumstances, the addition would be between 20 and 30 hours according to the design and lay-out of the area and surface materials used.

29. The degree of direct supervision of domestic work may need to be individually determined but generally there should be one Supervisor to between 10-20 domestic staff depending on physical and other factors such as:

- (1) ward lay-out;
- (2) inter-relationship of ward units;
- (3) extent of central services;
- (4) work load variations.

An alternative ratio may be 1 supervisor to a nursing unit of 120 available beds ie. four wards of 30 beds.

30. Mechanical methods should normally be used to clean and polish corridors, hallways and concourses. The operating speeds vary according to the type and size of machine and the machine selected will depend on the area to be cleaned or polished.

31. In departments and offices, a good standard of basic cleaning should be possible with a ratio of one Domestic Assistant to 6,000-8,000 sq. ft. of floor space. Extra staff will be needed where special cleaning of equipment and surfaces is required.

32. A good standard of cleanliness in staff residences can be maintained by a staffing provision in the ratios of:

- (1) one domestic assistant to 16 occupied rooms where room service is provided;
- (2) one domestic assistant to 20 occupied rooms when bedmaking is included but no room service is given;
- (3) one domestic assistant to 27 rooms when bedmaking is excluded.

This provision does not include time for cleaning communal areas such as lounges and dining rooms. Additional staff will also be required if the rooms are not in self-contained units.

33. A Senior Supervisor should be employed for every 3 Supervisors.

34. Domestic services often suffer from a high rate of turnover amongst staff. This throws particular emphasis on the importance of good working conditions, the quality of staff welfare arrangements, training and the methods employed to encourage the staff to take an interest in their work.

35. The foregoing staffing levels are based on a normal rate of working under 'non-incentive' conditions. Pay productivity schemes are especially suitable to routine work and many schemes related to cleaning and allied tasks are already installed in a number of hospitals. In those hospitals where a scheme has been introduced following a detailed work study the staffing will have been carefully assessed but this should not exclude subsequent examinations of the organisation of the staff and of the work.

Equipment, Materials

36. Equipment and materials account for only about 5 per cent of the total cost of domestic services. Consequently, the choice of equipment and materials should take into account the degree to which they result in the introduction of work routines which require less effort, less complex operation or less frequent application. Regional Advisers on Domestic Management can assist in determining the most appropriate equipment and materials for each process. Consideration should be given to sharing expensive equipment where this is possible.

37. A routine maintenance programme should be established for cleaning equipment in order to minimise the possibility of breakdown.

Selective Bibliography

38. The following publications contain information about the organisation of Domestic Services:

Hospital O & M Service Reports: London. HMSO

No 4 *Organisation and Management of Domestic Work in Hospitals.*

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 22 *Cleaning arrangements - economy in use of a detergent/bactericide.*

No 23 *Errands by Ward Orderlies.*

No 28 *In Nurses' Homes.*

No 34 *Cleaning Arrangements - reduction of cross infection hazards.*

No 35 *Work on Wards.*

No 41 *Cleaning arrangements - use of floor cleaning team.*

No 53 *Washing-up arrangements - centralisation.*

No 70 *Washing-up Arrangements - centralisation.*

No 86 *Central Bed Cleaning Service.*

No 99 *Supervision.*

No 133 *Domestic Services.*

HM(68)72 - Standing Nursing Advisory Committee Report - *Relieving Nurses of Non-Nursing Duties in General and Maternity Hospitals.*

Report of the Committee on Senior Nursing Staffing Structure (Salmon): London. HMSO - Ministry of Health and Scottish Home and Health Department.

Scope

1. The majority of O & M and Work Studies in the nursing field have been concerned with the production of detailed analyses of the work of ward nursing staff and their relationship with patient dependencies, and with methods of relieving nurses of non-nursing duties, including studies of the effects of centralised services.

2. Further studies are in hand or under consideration which will outdate existing information and in the light of these and other developments, this section of the guide is held over until the publication of the next revised edition. In the meantime, an extended bibliography is given below.

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nursing hours per patient day. *Hospital Topics*, 41, No 9, 46.

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- No 4 *Errands by Nursing Staff - Pathology Department - Delivery of specimens to laboratory.*
- No 38 *Ward Duties - Early Morning Routine.*
- No 42 *Recording Sickness of Nursing Staff.*
- No 46 *Errands by Nursing Staff - Porterage Services - Messenger service.*
- No 50 *Patient/Nurse Talk-back system.*
- No 51 *Ward Telephone calls.*
- No 69 *Nurses' Health Records.*
- No 96 *Work in Wards - the most time consuming activities.*
- No 97 *Work in Out-patients Departments - The most time consuming activities.*
- No 117 *Work in Out-patients Departments - the allocation of duties between trained staff, auxiliary nurse, and domestic staff.*
- No 121 *Ward Books - Combined Treatment and Ward Book.*
- No 136 *Relieving Nurses of Non-Nursing duties.*
- No 137 *Student Nurse Progress Records.*
- No 138 *Ward and Departmental Staffing Lists.*
- Hospital Building Notes: London. HMSO.
- No 7 *Accommodation for Nursing Staff.*
- No 14 *Training School for Nurses.*
- No 24 *Residential Accommodation for Staff.*
- Hospital Equipment Notes: London. HMSO.
- No 7 *Accommodation for Nursing Staff.*
- No 14 *Training School for Nurses.*

Scope

1. This section relates to the organisation of work in the Pathology Department in a hospital or a group of hospitals and should be read in conjunction with HM(70)50 which was published subsequent to the preparation of this guide. Although there are some arrangements for providing pathology services jointly by the Hospital Pathology Service and the Public Health Laboratory Service, none of the references is intended to apply to the latter.

Organisation

2. The Pathology Department receives for examination specimens taken from in-patients and out-patients and from the patients of General Practitioners. Hospital specimens may come from the wards, the theatres, Accident and Emergency Departments, Out-patient Departments and post mortem rooms. Patients may come to the department for fresh specimens to be taken or for special diagnostic procedures. Work may also be referred to the department by local authorities. (Hospital Building Note No 15).

3. The work of the department falls into four main sections:

- (1) Morbid Anatomy and Histopathology (including Forensic Pathology);
- (2) Chemical Pathology (including Toxicology);
- (3) Haematology (including Blood Transfusion);
- (4) Medical Microbiology (including Parasitology).

Recent developments in some laboratories have tended to sub-divide certain sections but these are for the most part research undertakings and include biophysics, clinical physiology and histo-chemistry. The present tendency is for the volume of pathology work to increase substantially, at a rate of about 10-12 per cent per annum.

4. Generally, a major hospital will have its own Pathology Department which may not only serve the hospital in which it is situated but may also serve as an area laboratory for other hospitals. Sub or satellite laboratories may be needed in other hospitals or special departments but care needs to be exercised to ensure that the most efficient use is made of staff and equipment. It is considered desirable for hospital and public health laboratories to

be in the same building with at times joint microbiological departments and current planning recognises this fact.

5. The advantages of planned centralising of laboratories are that:

- (1) staff can be used more effectively;
- (2) advantage can be taken of automated equipment;
- (3) equipment can be more effectively utilised;
- (4) a 24 hour service can be given;
- (5) a far larger work load can be handled.

A centralised service must be associated with an efficient transport service and a reliable communication system.

6. Generally the transportation of pathology materials and specimens should be undertaken by the Group Transport Services. Vehicles and drivers specially assigned to a laboratory can duplicate services and be wasteful of staff time and equipment.

Working Methods

7. If the Public Health Laboratory Service is in nearby accommodation, savings in staff time, equipment and materials can be achieved by providing some services on a common basis eg. production of media, sterilizing and wash-up facilities and the animal house. The PHLS pathologist may be responsible for examining all bacteriological specimens.

8. Clear operational guidance should exist for all routine procedures so that work can be carried out in the most economic way and to the required professional standard.

9. An efficient specimen collection and container topping up service should be provided co-ordinated with the working requirements of the laboratory in order to provide an even flow of work to the laboratory. The daily routine should arrange for the optimum batching of tests where appropriate to provide a better use of time and materials. These arrangements should also provide a speedier service of reports.

10. Specimens and request/report forms should be attached to each other at the time of collection to avoid the possibility of error and confusion. They should be placed for collection in pre-determined

and easily accessible places in wards and other collection points to save time. They should be collected regularly and a brief examination should take place immediately on receipt in the laboratory to ensure that the form contains sufficient information to avoid returning it later. The reception, checking, recording, preparing and laboratory distribution of the specimen should follow recognised procedures. Each laboratory will devise its own requirements taking into account reception staff and facilities, records, type of request/report forms, reporting systems and the extent of automated print-out of material and cumulative reporting.

11. Combined request/report forms with pre-printed 'normal' levels can substantially reduce clerical work both by clerical and technical staff. Where possible reports should be written directly on to the report form by the laboratory staff. The amount of writing to be done should be kept to a minimum by the use of pre-printed headings and rubber stamps.

12. Full patient identification details together with the name of ward, Consultant, and the tests requested must always be shown on the request/report form to:

- (1) avoid delays in returning report to the correct source;
- (2) ensure that the report is linked to the correct case record;
- (3) eliminate the need to refer to Master Index to identify the patient.

13. To avoid the unnecessary repetition of patient details a mechanical registration system will normally be used in connection with the completion of a pathology form. Not only is the amount of clerical work reduced but transcription errors are avoided.

14. The collection of dirty containers and equipment and the subsequent washing and sterilising procedures must be geared to providing the necessary flow of clean containers and equipment to technicians, otherwise staff may be held up and work may be delayed.

15. The overall handling of histology specimens can be speeded up if tissue processing is correctly organised. Some examples of methods of doing this are described in Hospital O & M Service Report No 10. Other methods used by pathologists however may also be appropriate.

16. The introduction of disposable materials and equipment should be considered from time to time not only from a basic cost comparison but also including the extra storage space required and the time likely to be saved in washing and sterilising procedures. An increasing range of specimen containers, and Petri dishes are likely to fulfill these requirements.

17. Inappropriate clerical work by technicians, eg. filing, can account for a substantial part of a technician's time which could with better effect be spent on technical work. Clerical work within the department should be centralised to provide greater control, supervision and flexibility.

18. Routine typing of reports is wasteful in typing staff time and the use of self-copying paper or photocopying is more economic. The use of self-copying

combined request/report forms has been found to be at least 25 per cent more economic in staff time than typing. It is possible to photocopy 4 reports at one time by careful design of the report form reducing the photocopying operating costs considerably. The use of self-copying paper twin set method has also been found to make significant savings. There can however, be rapid and significant price changes and a local cost comparison of the various methods of copying is advisable.

19. A recognised system of answering all enquiries should be in operation to ensure that they are answered promptly and at the appropriate level. Without such an arrangement, answering queries can waste time both inside and outside the department. A nominated person should receive all enquiries initially and refer them to the officer concerned. This work should be carried out in a manned reception office where one exists.

20. Specimen signatures of hospital staff and local General Practitioners can assist clerical staff in the tracing of requests.

21. The introduction of multi-lingual written instruction forms and notices should help to reduce delays and errors which can occur in areas in which a number of languages are in common use.

Staff

22. A formula for general guidance in estimating technical staff requirements is:

Staff hours required = Valued work in hours \times 2
 This formula assumes a 60 per cent target occurrence of technical work and an allowance of 25 per cent for interruptions. In addition, a local assessment will need to be made for morning and afternoon tea breaks, for staff absences on annual leave and sick leave and for any other reason such as study leave. The calculation of the 'valued work' may be based on local analysis of tests coupled with the representative times given in the Appendices to Hospital O & M Service Reports Nos 6 and 10 or it may be based on a representative time value per section or discipline as set out in paragraph 38 of Report No 6. Allowing for tea breaks, a technician works each week 35½ hours (2,130 minutes) and the part of that time available for valued work is therefore 1,065 minutes per week. This provides a base line against which to compare the performance of individuals or small units.

23. Where manual processes have been automated or where advanced electronic equipment is in use, full allowance of the effect of its use must be given in any assessment of the number of staff required. The automation of manual systems should normally enable an increased work-load to be handled. A reduction in the number of staff required does not, however, always follow as the availability of a rapid service covering a wider range of tests can stimulate additional demands from clinicians.

24. In an efficient laboratory the aim should be that at least 60 per cent of the technicians time should be spent at the bench (including directly associated paper work).

25. The main duties of the Chief Technician are in management. He should control and co-ordinate the day to day activities of the department, to ensure that the flow of work is maintained and peaks and troughs are, where possible, avoided. He should be responsible under the Pathologist in charge for organising, co-ordinating day release and educational programmes for student technicians within their needs and those of the department. The Chief Technician should be relieved as far as possible of routine clerical duties, stores accounting and ordering and dealing with routine queries.

26. It is not yet possible to assess the number of porters required in a Pathology Department by means of a simple comparison with some hospital factor such as the number of beds or specimens or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works, as far as possible to a defined programme; (2) whether the tasks in this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere and (3) whether in the light of the work to be done, some or all could be better done by pool porters.

27. Relief cover during the absence of clerical staff can usually be more easily arranged if the establishment function ie. selection, discipline and allocation of staff is that of the Medical Records Officer or the Hospital Secretary. The rotation of clerical staff among a number of departments including the Pathology Department can produce a useful broadening of experience.

28. By staggering starting and finishing times of clerical staff, the work flow can be improved, reducing or eliminating bottle necks. For example, by starting work half an hour in advance of technical staff and by covering the lunch hour, transcription and embossing of test headings can be carried out in readiness for the technicians. A later finishing time will enable more reports to be despatched on that day. In addition to benefiting

working procedures, the staggering of working hours may also be more acceptable to both clerical and technical staff, particularly part-time staff.

Equipment

29. Adequate arrangements for equipment maintenance should exist to minimise the possibility of breakdown and recognised alternative arrangements should exist in case of actual breakdown. With automated equipment particularly special national maintenance agreements may be in operation.

Accommodation

30. Where patients attend the laboratory, proper facilities, which should include a secluded room and a couch for taking specimens, are important.

Selective Bibliography

31. The following publications provide information about the organisation of work in Pathology Departments.

Hospital O & M Service Reports: London. HMSO.

No 6 *Pathology - Measurement of Work in Units.*

No 10 *Pathology - Organisation, Management and Methods.*

Abstract of Efficiency Studies in the Hospital Service: London. HMSO.

No 4 *Delivery of specimens to laboratory - Pathology Department.*

No 5 *Photographic reproduction of reports.*

No 31 *Automation in Clinical Biochemistry.*

No 72 *Photographic Reproduction of Reports.*

No 90 *Documentation System.*

No 107 *Improvement of Services to Patients.*

No 108 *Storage of Paraffin Wax Blocks and Slides.*

Hospital Building Notes: London. HMSO.

No 15 *Pathology Department.*

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Scope

1. This section provides information about the organisation of work in the Department of Physical Medicine which provides facilities for physiotherapy, remedial gymnastic, hydrotherapy and occupational therapy treatment.

General Considerations

2. Generally a district general hospital would accommodate the department and probably provide a Group service. With smaller hospitals it may be costly to have a separate department within the hospital and services for both in-patients and out-patients may be provided by a department of a larger hospital, either by visiting remedial staff or by the treatment of patients at the larger hospital.

3. Most in-patients receive their treatment on the wards either individually or in groups, but others attend the department – many in wheel chairs. Out-patients form the greater proportion of patients receiving treatment from the department and close links may exist with a Day hospital. Rehabilitation services are provided to a varying degree, their type and scale will be related to the type of patient eg. psychiatric and geriatric as well as to the stage reached in their treatment.

4. Physiotherapy and remedial gymnastic treatment provided by the department may be classified as:

- (1) *active* – remedial exercise either in groups or individually;
- (2) *passive* – usually individual passive treatment, including massage, manipulation, heat and assisted movements, and electro therapy either in wards or in cubicles.

5. Occupational Therapy is the treatment of mental and physical disorders to assist recovery by means of specially adapted crafts and other forms of productive work and recreational activities. The type of work can vary considerably. The present tendency is towards activities which are more closely related to the patient's life after discharge. To ensure that reasonable use is made of the heavier industrial equipment needed, a full Occupational Therapy Department should normally serve a hospital, or a group of hospitals, with at least 400–450 beds. Treatment is provided for both in- and out-patients and the accommodation may include:

- (1) *a heavy workshop* – a general wood and metal workshop
- (2) *a light workshop* – providing light handicraft, assembly work and clerical work
- (3) *a domestic section* – for training disabled patients in the activities of daily living. Used in conjunction with physiotherapists and remedial gymnasts for assessment and training.

6. Where possible, the physiotherapy, remedial gymnastic, hydrotherapy, and occupational therapy sections of the department should be inter-related to form one unit and should contain consultative and clinical facilities for medical staff.

7. Where there is a school of physiotherapy, occupational therapy or remedial gymnastics substantially more treatment space, eg. cubicles and a larger gymnasium, will be required as more staff, students and teachers will be involved.

Working Methods

8. In common with other Medical Service Departments dealing with large numbers of patients, the arrangements for the booking of Physiotherapy patients and the way in which work is organised can significantly affect the efficiency of the department. There should be regular and close consultation with senior representatives of the Medical Records Department on the general planning of appointments. Regular consultations are useful to decide how new appointments can best be fitted into the general work pattern to secure the most advantageous use of staff and equipment.

9. Studies have shown that amongst other things there is a danger of a high incidence of under-utilised time and consequently attention should be paid to the following points:

- (1) appointments systems need to be carefully devised and organised;
- (2) appointment lists need to be reviewed to ensure that they do not contain the names of patients unlikely to attend;
- (3) the work needs to be correctly programmed;

(4) the layout needs to be arranged so that the distances walked by both staff and patients are kept to a minimum;

(5) the equipment required needs to be carefully assessed to ensure that excessive holdings are eliminated and that the equipment required is correctly stationed.

10. In the larger Physical Medicine Departments, appointments work is likely to be carried out by the clerical staff. Where this is done there should be close liaison at all times when new appointments are made to ensure that staff time and other resources are used to the best advantage. In smaller departments, booking work may conveniently be carried out by the remedial staff to avoid the use of clerical staff who would not be fully employed.

11. It is not unusual to find a relatively high level of non-attendance by out-patients. This is often of the order of 10 per cent and in some physiotherapy departments as much as 20 per cent has been recorded. The effect of non-attendance on staff time is usually most pronounced at the beginning of individual treatment sessions because if the first patient fails to attend, the therapist may be unoccupied for as much as half an hour until the next patient is due. In order to avoid under utilisation of staff time and other resources, a percentage addition, based on local experience, should be made to the number of bookings for treatment. It may be useful where block bookings exist, to stagger the booking times of the extra patients so as to reduce waiting time in the event of a high rate of attendance.

12. Where appointments are arranged at a central point, perhaps by a clerk, the use of appointment boards rather than appointment books is to be preferred because they enable commitments of staff and equipment to be seen more readily. They should show the following information:

- (1) appointment times vertically at half hourly or quarter hourly intervals through the day;
- (2) sections of the department set out horizontally identified either by the name of the section, the type of treatment room, by the name of the physiotherapist or by a combination of these;
- (3) names of patients which can be entered on plastic strips or card and affixed to the board in slots;
- (4) means of identifying the types of treatment possibly by the use of different coloured cards or discs;
- (5) means of identifying the patients requiring transport possibly by using a distinctive disc.

13. It may be convenient to have separate boards for different days of the week. There should also be a list or code, preferably attached to the board showing the range of equipment available in each treatment area against which known commitments can be compared thereby enabling uncommitted facilities to be quickly determined.

14. Patients' names should be removed from appointment records without delay when they have either:

- (1) completed a course of treatment; or
- (2) failed to attend repeatedly without explanation.

15. A simple and effective way of notifying the department that a course of treatment has been completed is for the staff in the consultative clinic to complete a simple pre-printed form requiring no more than the entry of the patient's name and registration number. The permitted number of consecutive failures to keep treatment appointments without explanation before the patient's name is removed from the treatment appointment list varies but two might not be unreasonable. In departments where appointments are booked at a central point by a clerk, this decision should be conveyed to him as soon as possible.

16. A regular medical review of treatment will normally be carried out to decide whether the patient's continued attendance is necessary. If this is not done, treatment can be prolonged beyond what is clinically necessary, not only using expensive facilities unnecessarily but also adding to the delay in clearing waiting lists. Recording clinical details on treatment cards rather than in a 'bound' register generally simplifies the working arrangements.

17. Wherever possible appointment systems should provide for the treatment of several patients concurrently and for some on a group basis. Individual treatment may be necessary but it is naturally expensive. When class or group treatment takes place care must be taken in deciding upon the number of patients per session. Twelve may be the maximum that can be handled in physiotherapy classes. If there are too few patients the cost is likely to be excessive and if too many, the treatment may be less intensive than intended.

18. Care must be exercised in planning ward treatments in order to keep the proportion of actual treatment time as high as possible. Adequate liaison should exist to prevent the attendance of a therapist at inconvenient times. Where possible in-patient treatment required on the wards should take place on a group basis.

19. Treatment for some patients may include exercises to be undertaken at home. If this type of therapy takes place in hospital, it results in patients making unnecessary journeys to hospital and needlessly occupying the time of therapists.

20. Close liaison between the Ambulance Service and the department is necessary in order to provide a co-ordinated collection and delivery service to enable both services to work efficiently.

21. There is a danger that the records for the Occupational Therapy services may be over-elaborate, imposing an excessive demand on professional staff time. The design of stock, job and cash records should be such as to require the minimum of effort in completion while fulfilling the requirements of public accountability. A great deal of time can be spent on keeping stock records for a wide range of inexpensive items.

22. The introduction of multi-lingual written instruction forms and notices should help to reduce delays and errors which can occur in areas in which a number of languages are in common use.

Staff

Physiotherapists

23. Studies of many Physiotherapy Departments have produced data from which the following information has been derived. Efficient working and good working conditions are assumed.

(1) *Out-patient Attendance*

1 Out-patient receives on average 27 treatment/minutes (this does not refer to elapsed time. It includes elements of group as well as individual treatment).

1 Consultant referral to physiotherapy results on average in 11 attendances.

∴ 1 referral results on average in 297 treatment/minutes.

1 Physiotherapist can provide 160,000 treatment/minutes per annum or 560 treatment/minutes per day. (this calculation includes an adjustment for sick/annual leave).

∴ 1 Physiotherapist can on average deal with 1.9 referrals per day, or 20.7 attendances per day group and individual treatments.

An addition of one physiotherapist to deal with fluctuations in out-patient attendances of up to 15 per cent above the norm is usually allowed.

(2) *In-patient Attendances*

One physiotherapist should be allowed for an average of 17 or 18 in-patient treatments per day.

(3) *Hydrotherapy*

If a small hydrotherapy pool is installed and is in use for the greater part of the day, two additional staff may be needed.

(4) *In-patient treatment in Wards*

An in-patient receiving physiotherapy treatment on the ward requires on average 15 treatment/minutes. Because this work is less capable of even distribution either over the week or over the day, and varies in accordance with patients' needs and availability there may need to be an addition of 50-100 per cent to this assessment.

24. Studies have suggested that there is non-physiotherapy work which may suitably be undertaken by orderlies. Some examples of these duties appear in Figure 1 of Abstract of Efficiency Studies No 77. The employment of an orderly is likely to be justified in departments employing 12-15 physiotherapists. There is unlikely to be a reduction in the number of Physiotherapists required but the appointment of an orderly will enable them to free some of their time for work requiring greater skill.

25. A Superintendent Physiotherapist will be responsible for controlling and co-ordinating the day-to-day activities of the department to ensure that, where possible, peaks and troughs of work are avoided. It is generally easier to plan the work of the department if the responsibility for each section is specifically allocated to a Senior Physiotherapist and this usually results in a better use of physiotherapists' time.

26. If there is a local demand for early and late examinations this may be met by staggering the working hours and holding an evening clinic. Providing facilities for treatment after normal working hours can be convenient for patients, enabling those who normally work during the day to receive treatment without loss of working time.

27. In an efficient department, at least 70 per cent of the physiotherapists' time should be spent in treatment of the patient (including directly associated paper work).

Occupational Therapists

28. In Occupational Therapy Departments the range and scale of work varies considerably and largely for this reason no patient/staff or job/staff ratios have yet been developed. The number of staff required can be judged only in the light of the workload existing in a particular department.

Clerical Staff

29. If the establishment of the Department of Physical Medicine includes clerical staff, relief cover during absences can usually be more easily arranged if the establishment function, ie. selection, discipline, allocation, is that of the Medical Records Officer or the Hospital Secretary. The rotation of clerical staff among a number of departments including Physical Medicine can produce a useful broadening of experience.

Porters

30. It is not yet possible to assess the number of porters required in a Department of Physical Medicine by means of a simple comparison with some hospital factor such as the number of patients treated or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works, as far as possible, to a defined programme, (2) whether the tasks in this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere and (3) whether in the light of the work to be done, some or all could be better done by pool porters.

Equipment

31. Some items of equipment may be used far below capacity and while this may be unavoidable in some cases, the more usual reason is that too much equipment exists of the same type in relation to demand. This may be due to an initial over assessment of

demand or a subsequent falling off in demand. On the other hand, under provision can create difficulties in the booking of appointments and also prevent the best use being made of therapists' time. A regular review of equipment is advisable, perhaps annually, to enable the provision of equipment to be related to the demand. A method of doing this is described in Abstract of Efficiency Studies No 78.

Accommodation

32. The three sections of the department as defined in paragraph 1 should be inter-related to form one unit based on a functional pattern of patient flow. Primarily this is required in order to minimise the distances over which patients have to travel but in addition it is also important because staff time can be wasted if excessive walking and movement of equipment is involved. The location of and the day-to-day allocation of cubicles and other facilities are important factors which can significantly influence the amount of time needed for treatment. Cubicles should be arranged to enable one Physiotherapist to supervise the treatment of several patients concurrently. It is also important to have the patients' waiting area adjacent to the main reception area.

33. The introduction of multi-lingual written instruction forms and notices should help to reduce delays and errors which can occur in areas in which a number of languages are in common use. The use of symbols may be better than written descriptions for directional notices and signposts.

Selective Bibliography

34. The following publications contain information about the organisation of work in Departments of Physical Medicine:

Abstract of Efficiency Studies in the Hospital Service: London. HMSO

No 25 *Organisation and Staffing - Physiotherapy Department.*

No 76 *Appointments Arrangements.*

No 77 *The Use of Orderlies for Non-professional Work.*

No 78 *The Provision of Equipment.*

No 83 *The Pattern of Physiotherapists' Work.*

No 107 *Improvement of Services to Patients.*

Hospital Building Notes: London. HMSO

No 8 *Physiotherapy Department.*

No 9 *Occupational Therapy Department.*

Diagnostic X-Ray Department 21

Scope

1. This section provides guidance about the organisation of work of the Diagnostic X-ray Department of a hospital. Guidance about Radiotherapy Departments which in this country are usually quite separate from Diagnostic Departments is not included.

Organisation

2. An X-ray Department will generally serve only the hospital in which it is situated although staff of the department may provide services at other hospitals using fixed, mobile or portable equipment. Domiciliary work may also be carried out. Co-operation between hospitals may exist in the provision of facilities for 'on call' arrangements and in providing training schools for Student Radiographers.

3. Radiographers are the direct responsibility of the Head of the Department and the Superintendent Radiographer. Nurses, clerical staff, porters and domestic staff attached to the Department are likely to be under the control of Matron, Medical Records Officer, Head Porter and the Domestic Superintendent respectively for establishment matters but for work control will generally be the responsibility of the Head of the Department or the Superintendent Radiographer.

4. The use of automatic processing machines, cassette conveyers, etc has speeded up the film processing work considerably, has saved significant amounts of staff time, has generally simplified working arrangements and has saved working space. The more advanced radiological equipment, eg. Image Intensifiers with Closed Circuit TV, and the introduction of techniques involving isotopes, thermography and ultra sonics extends the range and clinical value of work done but can absorb large amounts of staff time. Although the work performed is carried out as a service for others and as such generally originates elsewhere, nevertheless the quality of the department's service and the range of facilities it provides may influence the quantity and type of requests made upon it.

5. The X-ray Department has an important part to play in diagnosis and the quality of the service provided can directly influence patient care. Abstract

of Efficiency Studies No 107 contains a number of suggested remedies for difficulties which have caused inconvenience to patients, or which have contributed to the provision of a service which is less effective than it should be. Several of these affect the organisation of the X-ray Department.

6. The provision or maintenance of services by the employment of Agency Staff is generally an expensive way of providing services and should be avoided wherever possible.

7. The salient non-medical features affecting the efficient operation of X-ray Departments or constituting items of good practice are:

- (1) the extent to which methods contribute to the convenience and speedy diagnosis and treatment of patients, for example the provision of continuous and immediate reporting facilities, when required;
- (2) the general organisation of the work including the avoidance as far as possible, of peak periods of uneven loads of work and the efficient use of available staff and other resources;
- (3) the efficiency with which equipment and materials are used;
- (4) the extent to which professional and technical staff are relieved of non-technical work which can advantageously be performed by less skilled staff;
- (5) the efficiency of the clerical and administrative arrangements supporting the department, ie. reception, film storage and recovery, preparation and distribution of reports, maintenance of patient indices and related reports.

Working Methods

8. The organisation of patient work including the reception and booking of appointments should be planned to provide as far as possible a steady flow of patients to the department in order to keep unoccupied radiographer time to a minimum. The completion of the main stages of patient reception and of patient examination should be watched to identify any delays which take place and remedies provided. For example, if radiographers are waiting for patients, because of delays in obtaining previous films, it may be necessary to record some of the patient's personal details and to recover previous films while current films are being processed.

9. Appointments should, as far as possible, be spread evenly over the working day. In-patients should normally be given priority but should be called when they are unlikely to delay anticipated numbers of urgent out-patient examinations and at times when demands from other sources for immediate examination are likely to be low. GP referrals should be arranged for times when other demands are least likely to be affected.

10. Close co-operation between the clinics and the X-ray Department and an appreciation of the factors which influence the referral of patients to the X-ray Department can achieve significant savings by helping to improve the appointments system and to provide an even flow of patients to the department.

11. Technical and ancillary staff time can be wasted if examinations of in-patients are not carried out at the pre-arranged times. Arrangements should exist to ensure that ample notice is given to wards about the examination booking times and efforts should be made to keep to these times. In addition it may be useful to telephone wards to let ward staff know when a porter is about to collect a patient.

12. Patient particulars should be photographed on to films either by dark room technicians or by radiographers, from typed patient identification labels or from slips typed or written by reception or radiographer staff. This saves a significant amount of staff time and can improve legibility.

13. Abstract of Efficiency Studies No 107 contains a number of possible methods by which delays in dealing with requests and in producing reports to the requesting doctor can be minimised. Some of these are:

(1) the request form should be completed promptly, dated and sent to the X-ray Department. It should contain all the relevant details, clearly written, and particularly information about patient's mobility, any previous visits to X-ray, previous X-ray number and the dates of such visits, and whether immediate or 'wet' film is required or whether the report is needed for the patient's next clinic attendance;

(2) a regular porter/messenger service should exist to ensure that requests are collected and reports delivered promptly and to move films and mobile equipment;

(3) a provisional report should be prepared where it is impracticable for a radiologist to report immediately in full on in-patient or accident cases;

(4) there should be a regular review by management of waiting times for both in-patient and out-patient appointment cases.

14. It is desirable that all processed films should be 'vetted' by a Radiologist, a Superintendent Radiographer or his deputy before the reporting stage. However, radiographers (particularly junior) should not be discouraged from viewing their own films in order to judge the quality of their work.

15. The use of cassette conveyors is unlikely to save significant amounts of staff time but can reduce substantially the amount of effort in handling and carrying cassettes. Depending on the layout of the department, eg. a linearly arranged department in

which some examination rooms are remote from the Dark Room, a suitable alternative may be to use a two-wheeled cassette trolley.

16. Routine arrangements for the prompt sorting of processed films and their association with request forms, previous copy reports and films, in readiness for reporting must be made to avoid subsequent confusion and difficulty for radiologists.

17. Ideally, reporting should be done direct to the typewriter but this may not be practicable at all times. Dictation machines should also be used as they enable staff time to be used more effectively than when notes are made in short or long hand.

18. The longer the delay in producing X-ray reports to wards, the greater will be the number of telephone calls to the X-ray Department for information. A good standard of production of reports enables 80 per cent of routine cases, apart from reports on accident and emergency cases, to be reported on and reports to be distributed within 24 hours after the patient's examination. Attempts to improve on this general standard have proved expensive in staff time and difficult to attain. A real need must be demonstrated if X-ray Departments are to be asked to provide a quicker service than this. Nevertheless the maximum spread of reporting sessions should be aimed at.

19. Only one size of film envelope should be used, capable of accommodating film size 35 x 43cm. This not only eliminates any need to change envelopes if a larger film is taken subsequently but it simplifies ordering and storage of envelopes.

20. X-ray films should preferably be filed according to the patient's Unit number as this avoids the need for a second X-ray index number. If a procedure for colour coding of X-ray films and X-ray envelopes such as that described in Abstract of Efficiency Studies No 100 is adopted, the speed of selection of films in envelopes by the consultant and radiographer staff can be increased. Weeding may also be facilitated.

21. A considerable reduction can be made (up to 50 per cent) in the number of clerical staff employed on film filing and pulling if previous films are pulled only for those patients referred to the X-ray Department rather than for all out-patients attending OP clinics having previous films.

22. Where it is desired to retain in the X-ray Department request forms containing clinical information, a combined request and report form with duplicate copy (or gummed report slip for attachment to the request) is desirable, so facilitating also the creation of a Master Index of X-ray patients within the department. It can also reduce the space needed for filing.

23. If X-ray patient numbers differ from hospital numbers and films are filed in annual numeric order, X-ray indices should be filed alphabetically in groups of 3 or 4 years, keeping male and female patients records separate. This can facilitate location and retrieval of previous records and can save appreciable amounts of staff time. Filing index-cards in this way may reduce the time involved in this activity by up to one-half.

24. Maintaining statistical analysis sheets as described in Abstract of Efficiency Studies No 110 reduces unnecessary recording of patient identification details and areas examined, thus simplifying the system for collection and analysis of statistical data.

25. The employment of radiographer agency services to cover normal, emergency, or evening work is expensive. Where Agency radiographers are employed some assurance should be obtained that they are familiar with the equipment they are to use. Difficulties in recruiting additional staff may be ameliorated by the development of a local school of radiography (possibly in association with other hospitals). Alternatively, it may be possible to make arrangements with a neighbouring hospital to share 'On call' duties.

26. The introduction of multi-lingual written instruction forms and notices for patients should help to reduce delays and errors which can occur in areas in which a number of languages are in common use.

Staff

27. The following ratios have been compiled from a number of studies of general hospitals:

- | | |
|--|------------|
| (1) average number of fluoroscopy examinations per screening session: | 6 |
| (2) average duration of fluoroscopy session: | 1½-2 hours |
| (3) average number of examinations per radiographer exclusive of the contribution of students and of the Superintendent Radiographer per annum (assumes a 35 hour working week): | 3,160* |
| (4) average radiographer time per examination: | 15 minutes |
| (5) number of attendances per clerk per annum - includes typing, reception, filing etc: | 7,250 |
| (assumes that previous films pulled only for patients referred to X-ray Department. If previous films pulled for all out-patients irrespective of whether they are to be referred to X-ray, the clerical staff requirement engaged on filing and file retrieval is likely to be doubled. In departments examining above 120 patients per day one additional officer may be required for allocation duties) | |
| (6) average number of porter's return journeys between X-ray Department and wards per hour: | 5 |
| (7) number of radiographers excluding Superintendent, per main equipment (a higher ratio may represent a more intensive use of equipment or an over-generous allocation of radiographers): | 1.25 |

* Examples have been noted of annual output per radiographer ranging up to about 50 per cent above this figure, without apparent diminution of qualitative standards.

28. It is not yet possible to assess the number of porters required in an X-ray Department by means of a simple comparison with some hospital factor such as the number of beds, or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works, as far as possible, to a defined programme, (2) whether the tasks in this programme fill his hours of duty or can be re-arranged to eradicate any gaps, or the tasks combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere, and (3) whether, in the light of the work to be done, some or all could be better done by the 'pool' porters.

29. Radiographers may be allocated to specific equipments or to specific rooms for periods of 1 or 2 weeks. But in order to achieve maximum throughput staff should be allocated to patients rather than equipments or rooms and should conduct examinations in the first suitable examination room which becomes available.

30. The technical staff should not normally spend more than 5 per cent of their time on clerical duties. However, in small departments of about three examination rooms, it may be expedient to use radiographers to do a proportion of clerical work during slack periods rather than employ additional clerical staff.

31. If there is a local demand for early and late examinations, this may be met by staggering the working hours. Facilities for examination after the normal working hours may well be convenient for ambulant patients.

32. Greater flexibility in staffing the Clerical Section of the X-ray Department can be achieved if the Medical Records Officer is responsible for the appointment and allocation of staff, and for the filing and recovery of films. The rotation of staff among a number of departments including Diagnostic X-ray can produce a useful broadening of experience.

33. Porters and messengers should be used to avoid clerical and technical staff time being spent on messenger, escort and portering duties.

Materials

34. A month's holding of X-ray film stock within the department should generally be adequate. There should be a regular monthly order to replenish the stock.

35. The ratio of numbers of films used to examinations performed averages about 2.5:1.

Equipment

36. Some automatic processing machines are able to process and dry films in 1½ minutes, whereas older manual processing can take 30 minutes or longer. While the overall cost may be higher, automatic processors enable a speedier service to be offered, need fewer staff, they may require less space, and simplify the working arrangements generally.

37. The installation of an 'intercom' system linking Reception, Radiologists Reporting Rooms, Examination Rooms and Dark Rooms can considerably reduce staff movements within the department and enable staff to be located more easily. It can assist the Receptionist in allocating and directing patients to the examination rooms. It may not eliminate the need for telephones since the staff may need to communicate, without patients being able to overhear their conversation.

Accommodation

38. The following ratios have been compiled from a number of studies of X-ray Departments:

- | | |
|---|----------------|
| (1) average number of examinations per diagnostic room or main equipment per annum: | about 4,000 |
| (2) achievable number of examinations per diagnostic room or main equipment per annum (assumes 250 working days per annum): | „ 6,000 |
| (3) average number of film envelopes to one ft. of shelf: | „ 85 |
| (4) number of years storage of films in both immediate and secondary storage: | 6 |
| (5) number of years storage of films in immediate storage: | 2+current year |

39. Immediate film storage accommodation should be located adjacent to the Reception Office area to reduce walking to and from the film library.

40. The X-ray Master Index should be located at the Reception Desk.

41. The reception point should be located at or near to the entrance to the X-ray Department, and it should be adjacent to the patients' waiting area. This enables the Receptionist to meet all patients visiting the department and to supervise the waiting area. The clerical and typing staff should be accommodated within the 'reporting' area and should provide relief staff during the absence of the Receptionist.

Miscellaneous

42. Examples have been found of inflation of the number of weighted units, which has had the effect of reducing the unit costs. As an approximate guide

the following average number of units per examination in each category can be used to assess the normality of the number of units appearing in the cost statements:

(1) In-patient	2.5 units per examination
(2) Out-patient or GP	2.1 „ „ „
(3) Others	2.0 „ „ „

43. Generally, accident and emergency patients and patients with booked appointments should not have to wait more than 10-15 minutes before the commencement of their examinations.

44. Generally the waiting time for out-patient appointments for:

- (1) barium fluoroscopic examinations should not exceed 7-10 days;
- (2) intravenous pyelograms and cholecystograms should not exceed 7 days.

45. Attention should be given to efficient and economical arrangements for the recovery of silver from spent fixing solutions and from films removed for destruction (see Abstract of Efficiency Study No 79 and Technical Guidance issued by film manufacturers in association with automatic film-processors).

Selective Bibliography

46. The following publications contain information about the organisation of work in Diagnostic X-ray Departments:

Abstract of Efficiency Studies in the Hospital Service: London. HMSO

- No 26 *Radio-diagnostic Department - Organisation.*
- No 33 *Radio-diagnostic Department - Organisation.*
- No 55 *Radio-diagnostic Department - use of changing cubicles.*
- No 79 *Diagnostic X-ray Department - recovery of silver for film processing.*
- No 100 *Radiological Departments - colour coding of films.*
- No 107 *Improvement of Services to Patients.*
- No 110 *Radiological Department - Elimination of the Day Ledger.*
- No 118 *Radiological Department - use of request card for copy of report.*

Hospital Building Notes: London. HMSO

No 6 *Diagnostic X-ray Department.*

Towards a clearer view. The Organisation of Diagnostic X-ray Departments. Nuffield Provincial Hospital Trust.

Planning Guide for Radiologic Installations. Wendell G Scott. The Williams and Wilkins Company.

Scope

1. This section provides guidance about the organisation of work in hospital stores. A separate section exists for supplies and this is, in general, concerned with the arrangements for the purchase of goods and materials for stock and immediate use. In addition this section includes guidance about some aspects of the supplies distribution and collection systems.

General Considerations

2. The efficiency of a Stores organisation must be judged primarily by its ability to provide the consumer with the necessary goods in the proper form at the time they are required. However, it is also important to judge its efficiency by the cost incurred in operating the store. A formal system of stock control will be necessary if operating costs are to be kept to a minimum.

3. To provide guidance to hospital authorities about the location of Stores a study of Stores centralisation is being undertaken by the National Coal Board Operational Research Executive in collaboration with the Department of Health and Social Security.

4. In general, however where there are a number of hospitals in a compact group, consideration should be given to the provision of a Central or Area Stores to serve all or some of the hospitals. As Central or Area Stores usually involve double handling and provision of additional transport, the extra cost of these needs to be compared with the savings to be realised from the elimination of storekeeping arrangements at the constituent hospitals and the economies likely to be achieved from bulk buying.

5. Certain less tangible but no less important advantages can also flow from the centralisation of Stores and should not be ignored, eg. more standardisation within the group can be effected, stock holdings reduced, and the value of total stock held can be limited.

Stock Control

6. The quality of the buying policy decisions will materially affect the cost of operating a store.

Basic to these decisions are the following considerations:

(1) Should a particular item be held in stock or should it be bought as and when it is required? Unless it must be readily available, an item should only be regarded as a stock item when a consistent and worthwhile demand exists;

(2) When should orders be placed for stock items? The factors which influence the decision when to place an order are the rate of issue from stores and the time required to obtain new supplies, ie. the lead time. From this information, plus a safety margin, it is possible to calculate the reorder level. A typical reorder level table is contained in 'Optimum Purchasing Tables' an Oxford Regional Hospital Board Operational Research Unit publication;

(3) How much to order, including consideration of possible discounts for bulk orders? The economic order quantity will be the total minimum cost of holding stock and of replenishing stock. Various Operational Research techniques exist which can assist stock controllers to arrive at such decisions. Prominent among these are Economic Order Quantity and Coverage Analysis. The Oxford Regional Hospital Board Operational Research Unit has published booklets which explain the bases of the techniques and demonstrate their practical application. The National Coal Board Operational Research Executive is at present studying the possible application of stock control in the National Health Service in collaboration with the Department of Health and Social Security. A report will be published in due course.

7. The achieved storage cost is one method of measuring the efficiency of the stock controller; another is the frequency of turnover of stocks. In industry and nationalised undertakings a stock controller would be expected to turn over his stock at least four times and possibly five or six times each year.

8. An important factor in a purchasing decision is often the offer of discounts linked to the purchase of specific quantities. The problem is whether the savings obtained by buying the larger quantities are greater than the cost of holding the additional stock.

The following table, which sets out the decision levels based on a 20 per cent holding cost, is compiled from a typical Operational Research model.

Discount %	Break even number of months
$\frac{1}{2}$	0.6
1	1.2
$1\frac{1}{2}$	1.8
2	2.4
$2\frac{1}{2}$	3.0
3	3.6
4	4.8
5	6.0
6	7.2
7	8.4
$7\frac{1}{2}$	9.0
8	9.6
9	10.8
10	12.0
20	24.0

For example, the transaction will be worthwhile if the purchase price is reduced by 5 per cent and this involves acceptance of less than 6 months additional stock.

9. If economical stock holding is to be achieved, control must exist over the range of items which are held in stock. In addition to the items which must be carried in stock because of their essential nature, the remainder will need to be examined from time to time, perhaps annually, to ensure that their continued stocking is justified. Items which have not moved at all during the period or which have moved slowly and erratically should be reconsidered. When additions to the range are requested, the requisition should be accompanied by a clear statement of their purpose and which should demonstrate why the need cannot be met by an existing stock item. It should also be shown that there will be a consistent and worthwhile demand for the proposed addition.

Working Methods

10. It is customary in Stores for a 100 per cent check to be carried out of certain activities. One of these is likely to be the action taken to ensure that deliveries are not defective in quality or quantity. There is some evidence to suggest that the number of errors brought to light by comprehensive checks of deliveries is small and that their value is sometimes exceeded by the cost of carrying them out. If selective checking is introduced, the system must provide controls to indicate when the error rate changes so that any necessary alterations to the degree of check can be made.

11. The allocation of responsibility for security, control of keys, exclusion of casual visitors, procedure for dealing with demands for stores in the absence of storekeeping staff are 'rules' of Stores organisation which are better put down in writing and brought to the attention of each member of the

staff in the Stores Department. Periodical reviews of the systems laid down should be undertaken as any system, no matter how well designed, tends to become less effective with the passing of time.

12. Storekeeping work in connection with surgical dressings, medical and surgical equipment and some engineering stores items should normally be carried out in the Main Stores. Technical knowledge is required in purchasing these classes of stores but in other respects they can be handled by ordinary storekeeping processes.

13. It is important to ensure that the most appropriate combination of storage facilities is available in the Stores, not only to make the most effective use of space but also to minimise handling and to enable selection to be carried out with the minimum of effort. Whilst adjustable fixed location racking will provide the most suitable storage facility for the majority of the items in the stock range, there is also an increasing range of items which are best stored on pallets. The use of mobile racking may in normal circumstances be difficult to justify for economic reasons but its use is likely to be justified where building costs are high or where severe limitations of space exist. Increases of between 40 per cent and 60 per cent in usable storage space have been achieved by its use. Mobile racking however is more likely to be suitable for items in low demand than for those for which there is a regular demand requiring frequent access to the storage compartments.

14. Fixed location racking of wood is less easy to clean than steel and has the additional disadvantage of creating a fire risk, but it is more resilient, can absorb moisture, minimises condensation dripping, is rust and corrosion proof, is a poor conductor of electricity, and can be agreeable to staff particularly in cold weather.

15. Racking can be open or closed ended, open or closed back in a variety of heights and widths. It should normally not be more than 7ft 6ins high and the shelves should be readily and simply adjustable in height to allow for changing practice. If adjustments are unduly complicated, storekeepers may be deterred from making any adjustments which may be necessary to achieve the most effective use of storage space. If the inside surfaces of shelves are painted in a light colour, for example light grey, a better light reflection is provided than that given by the dark olive green which was more commonly used in the past. Whether shelves should be backed or covered at the ends depends to a great extent on the nature of the goods being stored. If there is little likelihood of items 'straying' from one shelf to another then there is little point in providing backing or end pieces. Where however backing or end pieces are required it may be more economic to provide them of steel mesh rather than of solid steel.

16. The correct choice of a stock location system will increase the efficiency of the storekeeping staff by minimising time and effort in the storage and stock picking processes. The main features of the more widely used of stock locations systems are as follows:

- (1) Spot location system. Stocks are positioned in any available space that suits the volume to be carried. The storekeeper memorises the location

and is thus virtually indispensable. The chief advantages of this system is its effective use of space. Its main disadvantage is its probably inappropriate positioning of fast and slow movers, thereby creating high order assembly costs.

(2) The sequence system. Items are located in alphabetical, numerical or order pad sequence without regard to issue frequency, size, weight or volume. In an order assembly area considerable ground will be covered in collecting, say, six items which may be spread over a range of 2,000-3,000 items. In general 90 per cent of the activity in the store comes from approximately 20 per cent of the items; or, put another way, about 90 per cent of the work can be carried out in about 25 per cent of the area if materials are located by frequency. Therefore, careful analysis of all phases of the order assembly operation is essential for a sequence location system to be effectively applied.

(3) Popularity location system. In the popularity location system, emphasis is placed on demand and materials are so placed that the more popular items are located in the most advantageous positions. In addition, where conventional shelving is used, the central position of the unit is used for the small popular items, the upper shelves for light-weight and least popular items and the lower shelves for heavy items. By dispersing stock in this way congestion is relieved in the order assembly area. For hospital stores, the popularity location system combines all the best features of other systems and properly applied will produce most satisfactory results.

17. Racks should be marked to show the stock classification (eg. provisions, crockery, staff uniforms etc) and the edge of each shelf should be marked with a description of the item. Location marking should also be applied to freestanding items and to items in bins.

18. A system must be evolved which will ensure the proper turnover of stock. Certain items, eg. films and some medical preparations have a limited life and failure to use them before they are out of date can be very costly. The principle of all types of issuing systems of first in, first out should almost invariably be adopted. It may be possible to load shelves from the back so that old stock is moved towards the front from which goods are picked. Where items are received and stored in bulk containers, the marking of the date of receipt clearly on the container so that it can be seen at a glance helps to ensure a proper turnover. When a change of fashion makes stock items no longer popular with the user, efforts should be made to persuade users to accept old stock until it has been cleared.

19. Many of the small items kept in a building and engineering materials stores are best held in bins. Bins are available which can be readily fitted into standard racking, thus making maximum use of the space available. A number of racks should be provided to house such items as pipes, tubing and timber. Care should be taken to provide adequate access to these racks having regard to the unusual length of the stock items. Movement of such items within a stores building should be limited and the racks allocated for their storage should if possible be

adjacent to an exit from the building. Hooks at the ends of racks can often provide a home for flexible tubing, an item which is always difficult to store.

20. It is by no means certain that the traditional requisition system is the most effective way of initiating issues of stores. There is much to be said for the alternatives (ie. standard packs and topping up) and provided that these are properly planned a great deal of clerical work and time is saved not only in the Stores but also in the user departments. These systems are likely to relieve the nursing and technical staff of clerical work and are worth considering especially where they ease the work of the Stores whilst still maintaining an effective control of consumption. The adoption of standard pack issues may have a substantial effect on the work within Stores since it will normally be possible to make up standard packs in off-peak periods. Abstract of Efficiency Study No 40 describes a study at a London Teaching Hospital which resulted in the introduction of a standard pack issue system.

21. The efficient and economical working of the Stores requires that the incidence of demands should be regulated to produce as even a flow of work as possible. This calls for a programme for stores issues to each hospital or department. The various categories of stores should be issued on prescribed dates, not only to facilitate storekeeping but also to reduce the work of maintaining stock records.

22. The breaking down of bulk stores into small amounts can be time consuming and therefore costly. The modern trend towards prepacking may add to the commodity price but this can often be justified on the grounds of saving the storekeeper's time. In addition it is likely to be more hygienic and should contribute to the cleanliness of the stores. Where collectable savings of staff time are possible, realistic units of issue should be agreed and stores should be purchased already packed in these units.

23. Under a requisitioning system, stores issuing procedures can be facilitated if requisitions are summarised before an issue is made. The summary being used as a check on the accuracy of the issue to each department, and of the total amount withdrawn from the racks and issuing from that amount the quantities requisitioned by the different departments.

24. The reconciliation of physical stocks with the figures shown in the stores ledger should be effected at least twice a year and, in the case of provisions where the turnover is usually much higher than for other stocks, four times a year. It should be carried out by an independent person possibly from the Treasurer's Department. Continuous stock-taking, that is the practice of taking stock of a number of items each week in a way which will enable the whole of the stock to be checked during the year, is a useful method of simplifying what is otherwise a major task. It is also useful as a method of introducing more effective control by the unexpectedness of checks of items selected at random and by directing special attention to more valuable items and those where the security risk is greatest.

25. Time, effort, and space can be saved by the use of properly designed containers. The main design

requirements for containers are that they should:

- (1) be light and easy to handle. Some evidence is available to suggest that for ease of handling by male and female staff containers should be approximately 2ft x 1ft x 1ft;
- (2) stack when full and nest when empty;
- (3) have lids and some device for locking, where this is required;
- (4) be capable of being washed easily and effectively;
- (5) be strong enough to withstand manhandling;
- (6) be stain resistant and withstand attack by chemicals;
- (7) contain provision for destination details.

A container with a loaded weight of much more than 25 lbs is likely to present handling difficulties especially for female staff.

26. Within the Stores, specific areas should be allocated to storage of different commodities, eg. provisions, textiles, stationery, hardware and crockery and some engineering materials. Segregation of items which are likely to contaminate others must be arranged. It is particularly important to keep cleaning materials separate from provisions. A high chain link fenced lockable compound should be provided for any engineering materials which because of their size or the dust they create, cannot be housed in the stores building.

27. An overhead gantry is particularly suitable for heavy goods which have to be moved some distance and will limit the amount of floor space which has to be reserved for the movement and storage of such items. It is useful as a means of transporting sides of meat from the delivering lorry directly into a cold room. Once the meat is hooked on to the gantry at the point of delivery, it does not need to be unhooked again until the time of issue. It also ensures that the meat first received is the meat first issued.

28. The use of powered conveyors should be considered where high volume deliveries or issues take place. Where gradients exist the use of gravity roller conveyors is advocated for moving goods into, around or out of Stores. Conveyors with light-weight frames with nylon rollers are available which are easy to move into position and comparatively silent in operation.

Records

29. Copies of orders retained in the Stores pending delivery should not be filed in numerical order but according to the stage reached in the execution of orders, and then alphabetically in order of suppliers. There should be three groups:

- (1) orders awaiting delivery;
- (2) goods received but invoice awaited;
- (3) orders completed and filed as a record of purchases.

If more convenient these could be filed under classes of goods.

30. The goods received record should be kept in the form of a unit document using one sheet for one delivery rather than as a running record. A quicker and more even flow of information is provided to the Supplies and Treasurer's Departments and the

need is avoided for invoices to be sent to the hospital concerned for certification.

31. Requisitions, where used, should usually be in triplicate but this may vary with the accounting system in use. Preprinting requisitions saves time in requisitioning, avoids ambiguity and facilitates summarising. Colour coding according to destination may be useful.

32. Summaries of issues if required by the system, are useful both to enable stores to be drawn in bulk (thereby providing a check on the issues make-up) and also for posting issues. Summaries are generally unsuitable where there is a wide range of articles and the number of issues for each item is small, eg. in a building maintenance materials store.

33. The use of bin cards has been criticised because they duplicate the stores ledger entries. They are, however, useful if there is a substantial delay between the receipt or issue of goods and the production of the stock records since they may help to reconcile current physical stock with the available records. They may also help to identify any errors of posting which occur. Their use may be required under a stock control system to indicate reorder levels.

34. The maintenance of control records for stores accounting purposes can be time consuming and, particularly in the case of low value items, sometimes disproportionate to their value. Abstract of Efficiency Studies No 116 describes a study which took place at a London Teaching Hospital as a result of which stores accounting was discontinued in respect of 356 out of a total of 593 stock items in the Cleaning Materials, Medical and Surgical, Hardware and Crockery, and Printing and Stationery categories. There has been a considerable improvement in the use of staff time without any real loss of control. An extension of the scheme to Bedding and Linen, Patients' clothing and Staff Uniforms took place later and as a result, a further 67 items were removed from stock records.

Staff

35. Insufficient information is available to enable staffing ratios for hospital Stores to be calculated.

Accommodation

36. Ideally, a hospital Store should be a rectangular single storey building, built on an open plan with a minimum of obstruction internally. With normal manual storage and stock picking arrangements, a ceiling height of about 10ft will be required. A different ceiling height would be appropriate if stacker trucks are used or if, for example, a mezzanine floor exists.

37. There is no short cut to assessing the size of building and amount of racking required to house stores. A detailed assessment must be made of what needs to be stored and what the maximum level of each stock item is to be. A description of such a study is contained in Abstract of Efficiency Studies No 89. To calculate the space requirements for each

item in the stock range is a time consuming process and a practical compromise is likely to involve detailed calculations for those items which require large amounts of space, eg. disposables, some dressings, bulk provisions, together with the use of average amounts of storage space for the remainder of the stock range.

38. Access for vehicles delivering to and collecting from the Stores should if possible be separated from normal pedestrian and ambulance routes. Loading and unloading stores from and into vehicles should take place with a minimum amount of lifting. To achieve this a reception platform at a suitable height – this is likely to be between 2ft 9ins and 3ft – should be provided. Most vehicles will require to reverse up to this platform and sufficient space should be provided to allow them to manoeuvre into this position.

39. Where an area of floor is to be used for free-standing stores, it should be quite clearly marked to show the limit of the space to be used in this way. Where stackers or pallet trucks are to be used, aisles should be at least 4ft 6ins wide otherwise a width of 3ft should be sufficient. A sizable area must be made available in a central position to provide for a make-up counter and for holding issues already made up prior to their collection or despatch. It should be possible to 'close' the issuing counter and this can be achieved by the use of either roll down shutters or half doors.

40. The following dimensions may be useful in assessing the physical layout of the storerooms:

	ft	in
Width of main gangway	3	0
Width of minor gangway for one person	1	10
Width of minor gangway for one person carrying load	2	2
Width of minor gangway for two persons to pass	2	4
Width of minor gangway for two persons with loads to pass	3	0
Width of gangway for average hand truck	4	0
Width of gangway for two trucks to pass	6	9
Turning space for average truck	6	9

41. The circumstances under which stocks are kept and in which stores staff work can materially affect the efficiency of the stores. In all storage areas due regard should be had to:

- (1) the atmospheric conditions appropriate to the particular category of stocks;
- (2) satisfactory environmental conditions for working; these may, in fact, conflict with (1) above;
- (3) the appropriate method of storage, eg. racking, bins, containers or free standing;
- (4) adequate lighting, either natural or artificial.

42. There is little doubt that the correct standard of lighting in a stores building contributes to the efficiency of the Stores. To make its maximum contribution, lighting needs to be properly planned, it should be adequate and it should not be wasteful. Full advantage should be taken of natural lighting, although this may restrict the positioning of racking and shelves around the outer walls. In a single storey building, it may be possible to use roof lighting but

care must be taken to avoid solar overheating and any such roof lighting must be designed with this problem in mind.

43. In general, well planned artificial lighting has the advantage of being able to contribute to a controlled environment avoiding the seasonal changes in lighting strength of natural lighting. Badly placed artificial lighting can cause glare, create shadows, make identification of stores difficult and contribute to accidents and damage to stock. Where the intensity of lighting is too low, dark corners tend to be created which are either not used at all or tend to be cluttered up with obsolete or unwanted stock.

44. It is generally found that fluorescent lamps in trough fitting are the most suitable for storage areas and the best penetration of light into each shelf will result from placing the lines of lamps at right angles to the line of the shelving. It follows that full advantage of cross reflections can only be obtained if the interiors of the racks are light in colour.

45. A maximum height of racking of 7ft 6ins has already been recommended in paragraph 15. In addition to difficult accessibility, where racking in excess of this height is used, lighting problems can be created. The normal position of light fittings should be high enough above the top shelf to prevent possible damage to the lamps or fittings when loading stores into or picking stores out of the top shelves. Plastic or wire guards can be used to protect fittings but they are likely to make cleaning and lamp changing more difficult. Where filament lamps are used, there is radiation of heat which is only slightly less than that generated by an electric fire of an equivalent wattage. This heat is capable of causing damage to stocks.

46. Humidity should not be a difficult problem in hospital stores. In this country, the relative humidity is normally around 75 to 76 per cent but it can vary from between 40 per cent in fine, dry weather to as high as 100 per cent in damp conditions. Providing a temperature of around 12°C (about 60°F) can be maintained in the stores, there is little likelihood of high relative humidity. Where temperatures are substantially less than this, some difficulty may be experienced with condensation. In a sudden, mild spell, warm air can enter the stores building which itself is at lower temperature. Under these conditions, relative humidity can rise to 100 per cent and can cause condensation on the walls and ceilings of the building and on the items stored within it. In areas where goods are required to be kept in a relatively dry condition it may be worth while providing a humidity measuring instrument.

47. Hospital Stores are comparatively large areas, in which a limited number of people are employed. Under these conditions, little ventilation is required provided that the stores do not suffer from solar overheating. The seasonal condensation in low temperature stores referred to in paragraph 46 can, in fact, be aggravated by an excess of ventilation. A relatively constant temperature must be maintained in storage areas and it is suggested that a temperature of 12°C (about 60°F) is appropriate for most types of stores and should provide reasonable working conditions. Provision must, however,

be made to store fruit and vegetables in a temperature not exceeding 10°C (55°F). Cold room storage should be provided at a temperature of 0°C (32°F) and, in addition, where it is necessary to store quick frozen foods, a deep freeze storage area should be available at a temperature of -14°C (0°F).

48. The risk of fire is particularly high in hospital Stores. Within what is often a large airy building, the only natural fire breaks may be the gangways between the racks. Should gangways become congested with equipment or empty containers, there is an increased chance that what would otherwise have been a localised fire involving an isolated section of stores, could instead involve the whole Stores building. Stores which are particularly inflammable, eg. petrols and oils, paraffin, paints, some X-ray films, etc should be separately stored and it should be possible to isolate these areas in the case of fire. Because Stores are not occupied during 24 hours of the day, it is imperative that watchmen or porters make regular visits to these departments outside normal working hours so that early detection of any fire may be possible.

49. To minimise thefts from stores, all stores buildings and storage areas (eg. engineers compounds) should be lockable, access to these areas should be limited and keys should be rigidly controlled. A spare key should, of course, always be available and should be kept in a sealed container. If it should be needed, say in the case of fire, or because an emergency issue of stores must be made, the subsequent return of the key and the resealing of the container should cause the reason for its use to be established. The desirability of watchmen or porter patrols has been recommended as a part of the fire precaution arrangements. Such patrols can at the same time form a part of the security arrangements and should be instructed to ensure that all doors and windows are secure.

Equipment

50. The type of handling equipment required for use in a hospital stores depends on the type of

building in which the stores are held, the type and height of shelving and racking used, the positioning of shelving and racking and the volume of stores handled. Stock picking trolleys are likely to be found in all stores and those with built on steps conveniently provide access to shelves. The use of pallets to avoid double handling of bulky items will generally be necessary and a number of these will be required together with a small stacker or pallet truck. Abstract of Efficiency Studies No 45 describes measures introduced by a Supplies Officer to reduce the work involved in the issue of provisions to wards.

Selective Bibliography

51. The following publications contain information about the organisation of work in hospital stores: Abstract of Efficiency Studies in the Hospital Service: London. HMSO.

No 40 *Stores Issues*.

No 45 *Stores Issues*.

No 89 *Planning of New Group Central Store*.

No 116 *Control of Low Cost Stores Items*.

HM(66)69, *Hospital Supplies Organisation* - Report of Hunt Committee.

HM(67)95, *Hospital Supplies Organisation*.

Oxford Regional Hospital Board O.R. Unit Reports - Oxford RHB:

No 4 *Optimum Purchasing Policy*.

No 10 *Coverage Analysis*.

NCB Operational Research Executive Report - *Supplies Within a New District General Hospital* - Issued by DHSS.

In addition the following reports are in course of preparation:

NCB Operational Research Executive Report - *Centralisation of Stores*.

NCB Operational Research Executive Report - *Stock Control Systems for Hospital Stores*.

Scope

1. This section provides guidance about the organisation of work in the Operating Department in a hospital. For this purpose, the term is intended to include only the main Operating Department.

General Considerations

2. The following advantages will generally accrue if the main theatres are grouped together:

- (1) greater flexibility in the use of theatres;
- (2) simplification of theatre staffing and better training of nurses;
- (3) centralization of certain procedures and processes conducive to greater efficiency and a higher standard of work;
- (4) economies in the provision of common facilities, such as changing rooms and nurses' preparation room;
- (5) economies in the capital and maintenance costs of the engineering services;
- (6) economies in the provision of instrument cleaning facilities which can, in some instances, be undertaken away from the operating theatre suite. This in turn produces:
 - (i) economy in the use of nursing staff since some of the work can be done by staff in a central sterile supply department;
 - (ii) a reduction in the undesirable build-up of heat and humidity which can be brought about by the removal of the sterilising equipment from the immediate vicinity of the theatre;
 - (iii) a reduction in the noise level in the theatre associated with washing and sterilising.

3. Arrangements should exist to enable the best use to be made of the operating theatres by the planned allocation of work to each theatre based on a controlled programme of operations and recognised procedures for dealing with emergency work.

4. A high level of theatre utilisation can best be achieved by efficient co-ordination between the medical, ward and theatre staff on the make up of and changes to operation lists. In this regard, the Theatre Superintendent fills a key role in ensuring the most efficient use of resources in the day-to-day management of the Operating Department.

5. Patterns of staffing are at present under consideration by the Joint Sub-Committee on Staffing of Operating Theatres.

6. Various ratios of the number of theatres required to the number of beds of different specialties have been published from time to time. The use of such yardsticks, however, can be misleading as so many factors, such as the type of work and the number of emergencies, have to be taken into account.

7. Radiology and pathology stand-by cover should, where out of normal hours work is undertaken, exist over 24 hours for 7 days each week.

Working Methods

8. Management requires a means of assessment which will enable the degree of utilisation of operating theatres to be determined. One way of achieving this is by keeping records for a representative period to show how much operating theatre time is being used. One such study, even after allowing generous periods of time at the beginning and end of the day and between operations, produced 'vacancy' percentages of between 18 per cent and 33 per cent for the general theatres. A better matching of workload to resources can often be achieved by improved co-ordination between medical, ward and theatre staff in the make up of, and changes to, operation lists.

9. Studies of the utilisation of operating theatre suites have shown that some of the reasons why available operating time was not fully used were:

- (1) failure to programme the elective surgery cases;
- (2) late arrival of patients caused by, for instance:
 - (i) patients not being properly prepared;
 - (ii) failure to complete the necessary documentation;
 - (iii) escort staffing problems;
- (3) late arrival of surgeons;
- (4) staffing difficulties - shortage of nursing staff sometimes delayed cases;
- (5) last minute cancellations which prevented the time being used for other patients;
- (6) absence of equipment and supplies;
- (7) poor co-ordination with other departments such as X-ray and Pathology.

10. Studies of work in operating theatres in four general hospitals revealed that the average time per operation was approximately 40 minutes. The range of time required however varied between 2 and 260 minutes. There is some evidence to suggest that up to 20 minutes is required between operations for cleaning and preparation work.

11. Studies have shown that patients have been kept waiting for substantial periods in the theatre block corridor or in the anaesthetic room before the operation takes place. Excessive waiting time can be reduced by improved liaison between the ward and the theatre so that patients are not sent to the theatre before they are required.

12. Disposal of waste materials and refuse and the removal of used instruments and equipment often present difficult problems and care must be taken to prevent cross-infection. Some form of bagging will normally be necessary. The use of electric lifts may be an acceptable means of removal of refuse, etc.

Staff

13. The Joint SMAC and SNAC Sub-Committee on Operating Theatres will be recommending patterns of staffing in Operating Departments to allow for the maximum delegation and flexibility between grades of staff consistent with safety and skills.

14. It is not yet possible to assess the number of porters required in an Operating Department by means of a simple comparison with some hospital factor, such as the number and types of cases or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering (1) whether each porter works, as far as possible, to a defined programme (2) whether the tasks in this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks combined in such a way as will fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere and (3) whether

in the light of the work to be done, some or all could be better done by pool porters.

15. Relief cover during the absence of any clerical staff employed can usually be more easily arranged if the establishment function, ie. selection, discipline and allocation, is that of the Medical Records Officer or Hospital Secretary. The rotation of clerical staff among a number of departments, including the Operating Department, can produce a useful broadening of experience.

Equipment

16. Adequate arrangements for equipment maintenance should exist involving the appropriate level of planned preventive maintenance to minimise the possibility of breakdown and recognised alternative arrangements should exist in case of actual breakdown.

17. The capital outlay in providing instruments for the Operating Department is likely to be very high. Abstract of Efficiency Studies No 64 describes a study carried out at a provincial teaching hospital which determined the number of instruments required for general surgery work and recommended methods of supply of instruments for operative procedures.

Selective Bibliography

18. The following publications contain information about the organisation of work in Operating Departments:

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 64 *Theatre Sterile Supply Unit - instrument packs.*

No 107 *Improvement of Services to Patients.*

Hospital Building Notes: London. HMSO

No 26 *Operating Department.*

Scope

1. This section provides guidance about the organisation of the Pharmaceutical Service of a hospital or a group of hospitals. In addition to the dispensing arrangements within a hospital pharmacy, guidance is included about the purchase, storage and distribution of drugs, the provision of an advisory service, off-site manufacturing and pre-packing facilities, research work and the quality control of drugs.

General Considerations

2. The functions of the hospital pharmaceutical service are generally recognised to be as follows:

- (1) to be responsible for the provision, nature and quality of drugs, medicinal preparations, dressings, chemicals and pharmaceutical sundries;
- (2) to ensure that during their storage in hospital, the potency and quality of all these items are maintained;
- (3) to obtain the equipment necessary for the efficient and economical working of the pharmaceutical service;
- (4) to make preparations to be used in dispensing prescriptions; to prepare other products for medical or surgical use; to devise formulae to meet special needs;
- (5) to dispense prescriptions;
- (6) to investigate pharmaceutical problems arising in the use of medicaments;
- (7) to assist in the development of new methods of treatment;
- (8) to promote economy in the use of medical supplies;
- (9) to assist in efficient prescribing by advising upon the nature and properties of medicaments and upon the selection of the most suitable substances and the form in which they should be prescribed;
- (10) to instruct or advise on the instruction of those whose duties involve the handling of the material provided by the service;
- (11) to provide all necessary facilities for pharmaceutical students to obtain a comprehensive training in hospital pharmaceutical work.

3. The Working Party on the Hospital Pharmaceutical Service, whose report (HMSO 1970) is now being considered by the Secretary of State, has

made recommendations about the future organisation of the service and the deployment and use of manpower. (See summary of Principal Recommendations on pages 44-45 of the Report). Any decisions made by the Secretary of State on the recommendations will have to be taken into account in due course, but in the meantime consideration should be given to ways of improving services within the existing organisation, so that the duplication of services mentioned in the Working Party report can be reduced.

4. The benefits which accrue from a service organised as advocated in HM(55)22 and HM(59)43 at least on a Group basis are:

- (1) a unified pharmaceutical service;
- (2) standardisation of systems and procedures, eg. cost control, prescribing, management information;
- (3) the creation of a situation which is sympathetic to the spread of new ideas throughout the group;
- (4) increased flexibility in the use of staff;
- (5) improvements in training arrangements.

5. Where appointed the Group Chief Pharmacist should be responsible for the maintenance of professional standards throughout the Group, although day-to-day control of sections of the work may be delegated to Chief or Senior Pharmacists. The Group Chief Pharmacist would probably normally report to the Hospital Authority through the Chief Administrative Officer but his responsibility to his employing authority for the group pharmaceutical service should be properly recognised. As recommended in HM(61)78, there is a need for an *ad hoc* Committee, eg. Pharmaceutical Services Committee to review services, equate clinical needs and pharmacy department resources, to consider the financial implications of changing activities and the prescribing of high cost drugs and to provide means of communication between pharmaceutical, medical and nursing staff.

6. The pharmaceutical activities of a large hospital may be classified under the following heads:

- (1) In-patient Services.
- (2) Out-patient Services.
- (3) Preparation of Special Formulations.
- (4) Bulk Preparation, including pre-packing and own process control.
- (5) Specialised Quality Control.

- (6) Information Services.
- (7) Storage of Pharmaceutical Products.
- (8) In-patient and Out-patient services to dependent hospitals.

Each large hospital will require a pharmacy providing it with the services mentioned in (1), (2), (3), (6) and (7) above. Some may in addition provide such services for dependent hospitals (8). The extent to which services (4) and (5) are carried out will depend on the arrangements which exist for bulk and special preparation, and specialised quality control, to be carried out on an inter-hospital, inter-group or sub-regional basis. This in turn will affect the type of accommodation to be provided for such activities in the hospital concerned.

7. The hospital pharmacy should be so situated that ideally:

- (1) hospital out-patients, including day-patients, have ready access to the hospital pharmacy to collect prescriptions;
- (2) dispensing of prescriptions for in-patients and out-patients can be carried out in a central dispensing area which is accessible to hospital staff wishing to consult the pharmacist or to obtain stocks for ward use;
- (3) where bulk production, including pre-packing and specialised quality control, is carried out within the hospital, there is suitable communication with the in-patient and out-patient dispensing areas.

8. In general, hospital pharmacies cannot compete with the pharmaceutical industry in the economic manufacture of pharmaceutical products, except for intravenous fluids and related products which can be produced more cheaply even when all overhead expenses are taken into account. The bulk preparation of drugs by hospitals should be undertaken only when comparable products are not readily available commercially, for staff training purposes, or where there would be an appreciable saving in cost. In determining the cost of such activities, the cost of supervisory staff, amortization and depreciation of equipment, and wastage of materials, should not be overlooked. The industry is usually unwilling to make special preparations or will do so only at a very high cost and probably with a considerable delay. (See paragraphs 7 and 8 of HM(55)22.)

9. There are special advantages in having bulk pre-packing, centralised store arrangements and specialist quality control on a Group or inter-Group basis and any development work should be similarly planned. Where bulk or specialist work is undertaken in this way, the advantages of gathering such services on to one site (eg. for use of manpower and transport) should be kept in mind.

10. The Chief Pharmacist, should be satisfied about quality, sources of supply and conditions of storage of dressings. The supply of surgical instruments and equipment and such dietary items as Horlicks, Ovaltine, etc should normally form part of the general supply and storage arrangements.

11. Communications between medical, nursing and pharmacy staff about standards and methods of prescribing is necessary to reduce errors in prescribing and dispensing. Ways of improving communication are suggested in the Report of the Joint Sub-Committee on the Control of Drugs in Wards, circulated to hospital authorities with HM(70)36.

Working Methods

12. To achieve the objectives of the Pharmaceutical Services with the economical use of resources, management needs to plan the work of the whole Group or inter-Group as well as the daily work of each member of staff. In the deployment of staff the following factors should be borne in mind:

- (1) all pharmaceutical activities should be under the control of a pharmacist who is responsible for laying down a safe system of work;
- (2) the pharmacist should be regarded as a member of the ward therapeutic team.
- (3) technical work which does not need to be undertaken personally by a pharmacist should be carried out by pharmacy technicians under the direction, control or supervision of a pharmacist;
- (4) much of the semi-skilled work can be carried out by locally recruited, in-service trained ancillary staff under the control or direction of a pharmacist;
- (5) clerical and storekeeping duties should, wherever possible, be carried out by correctly graded staff, not by pharmacists or technicians.

13. Although the present scattered nature of the hospital service sometimes requires the deployment of staff on a single hospital basis, it should be recognised that such deployment is wasteful of resources.

14. Simple management indices should be kept, as the situation demands, to assess the present overall workload and changes in it. Information of this type is necessary to provide a proper case for staff adjustments and on which to base policy changes. For example:

- (1) total number of items dispensed for out-patients;
- (2) total number of items dispensed for in-patients;
- (3) analysis of ward demands for drugs;
- (4) total volume of drugs dispensed through pharmacy.

15. The ward issues work in the pharmacy should be planned to make the optimum use of staff time and to avoid congestion of working areas. When considering the frequency of issues the cost of the following activities should be borne in mind:

- (1) writing, reading and checking ward requisitions;
- (2) assembling and packing ward issues;
- (3) distributing ward boxes;
- (4) costing ward issues.

16. The possibility exists that ward/department stocks could be increased and issues made less frequently without adversely affecting the work of the ward/department or reducing the Chief Pharmacist's responsibility for drug-use control.

17. The range and quantity of drugs held by wards should be agreed between pharmacy, medical and nursing staff. The basis of the ward stock will be the regularly used drugs without special storage problems. The quantity required for a week, or whatever longer period of re-stocking is decided upon, can be found by keeping a simple record over a period of 4-6 months. To this will need to be added those drugs which currently are in frequent use: these

drugs may vary from time to time. All drugs held on wards should be clearly labelled with approved name and strength, etc. On each ward there should be an up-to-date drug inventory.

18. The introduction of a ward topping-up round is worth considering. If through the operation of the ward pharmacy service ward stocks are controlled by a pharmacist, the topping-up can be undertaken by a technician. Such a scheme minimises paper work. If topping-up is impracticable and ward boxes have to be prepared in the pharmacy, the use of a pre-printed requisition form will be an advantage. The timing of the delivery of ward issues should be planned to cause least interference with ward routine.

19. The use of properly designed containers can save time, effort and space. The main design requirements are that they should:

- (1) be light and easy to handle;
- (2) stack when full and preferably nest when empty;
- (3) have lids with some device for locking;
- (4) be capable of being washed easily and effectively;
- (5) be strong enough to withstand manhandling;
- (6) be steam resistant and withstand attack by acids and solvents;
- (7) contain provision for destination details.

20. The amount of walking by pharmacy porters and the amount of interruption to ward staff which occurs if separate journeys are made to collect empty containers and to deliver filled containers and prescribed medicines can be reduced if empty containers are collected when fresh supplies are delivered. A properly timed system of porters' rounds for collections and deliveries should be arranged to reduce to a minimum the making of *ad hoc* requests to the pharmacy and to aid the planning of pharmacy work. The objections raised to the use of portering staff for the transport of Dangerous Drugs, poisons and drugs liable to misuse may be met by the requirement that such items must be transported in locked containers with keys held on the ward and in the pharmacy.

21. Good communication between medical, nursing and pharmacy staff about standards and methods of prescribing, dispensing and administration of drugs is essential. The use of a well designed drug sheet, such as that described in Abstract of Efficiency Studies No 115, is an important aid in making clear what has to be done, who has to do it, and in making provision for the action taken to be shown.

22. The Report of the Joint Sub-Committee on Measures for Controlling Drugs on wards, which was commended to hospitals in HM(70)36 as a model of good practice, suggests that in avoiding errors:

- (1) prescriptions must be clear and capable of easy interpretation by nursing staff;
- (2) clinicians should have easier access to the pharmacist and the pharmacist should have an opportunity to co-operate with the clinician;
- (3) ward stocks should be appropriate for the needs of the ward and be subject to regular checking by the pharmacist who should maintain close contact with nursing staff on the ward; and

(4) there should be effective control of drugs kept on wards, each ward having a standard ward stock which is kept under regular review.

23. The extent of ward visiting by pharmacists will depend on local circumstances but the Joint Sub-Committee Report describes the advantages to be gained from such a system.

24. Whether or not a ward pharmacy service is in operation, the supervision of drug stocks outside the pharmacy is the responsibility of the Chief Pharmacist. This is important for:

- (1) ensuring that statutory and other requirements in relation to Dangerous Drugs scheduled poisons and drugs liable to misuse are complied with;
- (2) ensuring that stocks are kept in proper conditions;
- (3) ensuring that drugs are not available for use when their potency cannot be guaranteed;
- (4) determining, in association with the users, that stocks are adequate in range and quantity;
- (5) arranging for the return to the Pharmaceutical Department of stock which is no longer in regular use and thus avoiding waste;
- (6) preventing unnecessary hoarding.

25. Regular visits to all drug stock holding points outside the pharmacy should be programmed with the department's other routine activities.

26. When drugs are dispensed within the pharmacy, this is usually done direct from the doctor's prescription, eg. treatment cards, case notes or specially written prescription forms. Occasionally drugs are dispensed from copies of the original prescription made by nursing staff. Because of the danger of error in transcription, dispensing should be carried out only on the prescription written by a doctor (or a facsimile copy of it), whatever may be the difficulties resulting from the need for the pharmacy to use the prime documents concerning the patient's treatment.

27. The dispensing of 'take home' drugs usually accounts for a large number of prescriptions individually dispensed in pharmaceutical departments (particularly in psychiatric groups and hospitals with considerable patient 'leave'), but sometimes it will be found that these drugs are issued by the ward. The issue of 'take home' drugs is dispensing rather than administration and a pharmacist should normally be responsible. 'Take home' drugs should be packed in the pharmacy and should normally be issued from there. They should not be issued from ward stocks.

28. The issue of forms EC10(HP) to meet out-patient requirements for drugs may allow for greater flexibility in the organisation of hospital pharmaceutical services. It has been suggested that the use of these forms is excessive and probably uneconomic and that drug supplies from chemist contractors may well cost more than those supplied from hospital resources. Insufficient evidence exists to enable general conclusions to be drawn but the following points are relevant:

- (1) in some groups overall savings might result from an extension of the out-patient pharmacy service, but against the reduction in EC10(HP)

costs must be set any increased expenditure on staff and additional accommodation required;

(2) where out-patient services are provided mainly at out-stationed clinics or mainly or partly from small peripheral hospitals without a dispensing point, it would almost certainly be cheaper and more practicable to use EC10(HP)s than to establish staff and maintain the dispensing points otherwise required;

(3) the use of EC10(HP)s for out-patients at times when pharmacy staff resources are reduced gives rise to additional costs which nevertheless may be lower than the alternative of recruiting locum staff or adopting staffing levels with in-built reserves to cover all absences.

(4) where, as a matter of policy (see paragraph 5 of HM(64)74), out-patient attendances are consultative and prescribing is left to the general practitioner on receipt of the consultant's advice, drug costs remain a charge on the National Health Service through the Executive Councils general pharmaceutical services.

29. The bulk preparation of sterile products and other drugs and medicaments should be under the control of a pharmacist, but the work can be performed by technicians (eg. assembling, measuring and, where appropriate, mixing the ingredients) and other pharmacy supporting staff (eg. sterilising, filling containers, sealing, labelling).

30. It has been found that dialysis solutions are suitable for hospital production, both on grounds of cost, quality control and availability of the product when required.

31. The production of sterile ampoules must be done on a large scale to justify the equipment required. Ampoule filling, for example, requires batches of at least 1,000 before the use of filling machinery is warranted. However, the exceptions given in paragraph 8 will apply to ampoules. Planned production is essential for all manufacturing to achieve the most economical use of staff and equipment.

32. Although the pharmacist in charge of manufacturing activities must be responsible for the quality of the products made, routine tests can be carried out by technicians within predetermined limits set by the pharmacist.

33. Quality control analyses requiring advanced techniques and equipment should be organised on a regional or sub-regional basis (see HM(65)22). Such work need not be carried out only at one centre, but should be so organised that all items bought under contract are subject to any necessary tests.

34. Pre-packing should be programmed into the work of the pharmaceutical department to ensure that short uneconomic runs are avoided, and that advantage is taken of the less busy periods. This work can be carried out by suitably trained ancillary staff under the supervision of a pharmacist.

35. The pre-packing into point-of-use size containers of drugs manufactured in the pharmaceutical department in bulk has the following advantages:

(1) at the time of issue, the work involved is simply the handling of a container containing a known quantity and the checking of the label with the prescription or requisition;

(2) the work can be carried out away from the area where patients' prescriptions are filled and at a time which fits in the programmed work of the pharmaceutical department;

(3) with the use of equipment, it takes proportionately less time to fill a large number of containers than to fill one or two by hand;

(4) the work can be undertaken by unqualified staff with a minimum of supervision by pharmacists.

36. A simple record maintained in the Pharmaceutical Department can establish the size of pack required for the main drugs, both for issue to individual patients and for ward use. If, in consultation with the medical staff, some measure of standardisation of drug requirements can be achieved, this will enable long runs to be planned thus making the best use of machinery. It has been found, for example, that for repacking in 50's, machine counting is faster only when more than 45 bottles (2,250 tablets) are packed. For batches of less than 45 bottles, it would be more economical to batch weigh 50 tablets and fill by hand, using a scoop.

37. A label printing machine is economic only for runs of over 100 labels.

38. Considerable savings have accrued from the introduction of regional or area contracting for pharmacy stock items. In addition, there are other significant advantages. For example:

(1) a considerable saving of work at Committee and officer level in negotiating local contracts;

(2) benefit has been gained from bringing together the pharmacists concerned, especially in standardisation and improvements in the quality of items.

39. Reviews should take place from time to time to ensure that all items which may benefit from this form of contracting are purchased in this way.

40. The transport needs of Pharmaceutical Departments are likely to be met more economically by a properly organised group transport service than by the allocation of vehicles to the department.

41. Orders on suppliers should normally be completed in quadruplicate and copies sent to the storekeeper and the Treasurer. Counter-signature of pharmacy purchase orders does not usefully add to control and should not take place. Independent checks of invoices, however, should be made by the staff of the Treasurer's Department. The check should cover such matters as prices, whether purchased from the appropriate firm, whether tenders were invited, etc.

42. Wherever possible, pharmacy stores purchasing and storage arrangements should be centralised. Such an arrangement allows staff time, Storage facilities and quantities purchased to be optimised. Normally, clerical staff should be used for stores purchasing and records work, even if only on a part-time basis.

43. Hospital O & M Service Report No 9 recommended that a check should be made of goods delivered to the pharmacy for quantity and damage, with a recognised procedure for handling queries. The use of a duplicate goods received book with a

separate form for each transaction was also recommended. Invoices should normally be certified in the Treasurer's Department but there may be local circumstances which make it expedient for the certification to be done in the Pharmaceutical Department. Coding for analysis purposes should normally take place in the Pharmaceutical Department.

44. The pricing of drug issues to hospitals served by another hospital or group pharmacy can be a time-consuming operation requiring the use of highly skilled staff. Abstract of Efficiency Studies No 68 described a simplified pricing system which used a standard price. This system achieved a saving of work in both the Pharmaceutical and the Treasurer's Departments.

45. Traditionally, the procurement, storage and issue of dressings have been the responsibility of hospital Pharmaceutical Departments. Studies have shown that:

- (1) all routine work in relation to dressings is carried out in Pharmaceutical Departments by supporting staff, where available, with minimum supervision and professional involvement;
- (2) systems for requisition and issue of dressings follow a different time scale to those for drugs, involving separate delivery arrangements;
- (3) the sheer bulk of dressings in store and the handling involved on receipt and issue requires a location not necessarily related to the best location of other pharmaceutical services;
- (4) where out-patient services are provided, the issue of dressings to such patients is limited; and
- (5) the supply of dressings adds unduly to the burden of clerical records and costing activities in Pharmaceutical Departments.

46. The pharmacist, by reason of his training, is best qualified to advise on the quality of dressings, the possibility of using alternative products, and on sources of supply: it does not follow, however, that the pharmacist should be personally involved in the routine of preparing orders, and in the receipt, checking, storage, recording and issue of goods.

47. Some Pharmaceutical Departments are responsible for the supply, replacement and repair of surgical instruments; for the supply of medical and surgical sundries, including disposable syringes and needles; for the purchase of medical equipment and for the provision of surgical appliances, hearing aids, etc. In general, surgical instruments and equipment should form part of the general supply and storage arrangements. If the Chief Pharmacist is relieved of these responsibilities, albeit that his professional advice and expertise would remain available on these matters when required, marginal relief will be provided for other management duties.

48. In some Pharmaceutical Departments there are items which it is difficult to classify as drugs: these include a number of dietary items of which beer, Horlicks, Ovaltine, Nescafe and various normal baby foods, including dried milk, are examples. There are also such items as babies' napkins, incontinence pads, rubber bed pans, hot water bottles, nail brushes, tooth brushes, feeding cups, hair cutting scissors and many other items which are more appropriate to general stores. The transfer of

these items to general stores should also provide some relief on management and storekeeping duties.

49. The CSSD should not be part of the Pharmaceutical Department but should be managed as a separate department, with pharmacists and bacteriologists providing technical and professional advice on requirements and techniques.

50. The introduction of multi-lingual written instruction forms and notices should help to reduce delays and errors which can occur in areas in which a number of languages are in common use.

Staff

51. Staffing ratios do not yet exist for hospital Pharmaceutical Departments. Some work has been done but because of the different work 'mix' no single factor has yet been identified as providing the basis for a ratio. Factors which need to be considered when reviewing the number of staff in post are:

- (1) the demand for special pharmaceutical products;
- (2) the patient 'mix';
- (3) demands flowing from teaching activities;
- (4) the range of manufacturing services provided;
- (5) the extent to which existing staff are employed on work appropriate to their level of training and experience.

52. Despite the range and scale of items stocked in the stores of Pharmaceutical Departments, about half of the departments have no special stores staff: stores work in these departments falls to pharmacy technicians and, sometimes, to pharmacists. There is a case for specialist storekeepers or storemen to support professional and technical staff in almost all large Pharmaceutical Departments. There seems also to be a strong case for extended use of the staff undertaking both storekeeping and clerical duties rather than using the clerical grades for stores records.

53. The delivery to the wards of medical gases, where this still takes place, should generally be undertaken by pool porters rather than pharmacy porters, since it is difficult to schedule these tasks economically because of the fluctuating demand for gas cylinders.

54. Departments with porters and domestics permanently on the staff claim considerable advantages in being able to train them exactly to the Department's requirements and the limited possibility of such trained staff being withdrawn for other duties when shortages arise elsewhere in the hospital. On the other hand, those with porters and domestic staff provided by the head porter or domestic superintendent are usually well satisfied as normally they retain the services of the same personnel and, at the same time, are provided with some cover from elsewhere for staff absences. Only the largest departments can justify the employment of these grades on a departmental basis and even then there is a danger of fixing a staff level to meet peak loads and to cover staff absences. In general, porters and domestic staff should remain on the strength of their parent department, from which additional assistance

can be sought at times of peak loads, provided that the normal practice is for staff of proved reliability and experience to be seconded for pharmacy duties to avoid an unnecessary load of supervision and instruction to continually changing staff.

55. It is not yet possible to assess the number of porters required in a Pharmaceutical Department by a simple comparison with some hospital factor, for example, the number of beds, prescriptions or walking distances involved. However, the appropriateness of the number of porters employed may be assessed by considering:

- (1) whether each porter works, as far as possible, to a defined programme;
- (2) whether the tasks in this programme fill his hours of duty or can be rearranged to eradicate any gaps, or the tasks combined in such a way as to fully occupy the morning or the afternoon, leaving the rest of the day free for necessary work elsewhere; and
- (3) whether, in the light of the work to be done, some or all could be better done by pool porters.

56. Relief cover during the absence of clerical staff can usually be more easily arranged if the establishment function, ie. selection, discipline and allocation of staff, is that of the Medical Records Officer or the Hospital Secretary. The rotation of clerical staff among a number of departments, including the Pharmaceutical Department, can produce a useful broadening of experience.

57. Staff training must be under the control and direction of the Chief Pharmacist as part of his management function. The grades of staff mainly concerned are post-graduate students and student pharmacy technicians but other grades of staff may be involved, for example, ancillary staff. There is some evidence that staff shortages are less acute in those departments in which Chief Pharmacists are prepared and able to spend time and energy in training their own staff than in those which rely solely upon advertising for suitably qualified staff. Where outside training facilities for technicians exist or can be arranged, the time-off required should be provided for in the work schedule.

58. With the need to keep abreast of continuing development in the pharmaceutical field, it is sound management practice to encourage pharmacists to take advantage of any short period of inactivity to employ their time in advancing their professional knowledge, eg. by reading current journals rather than carrying out routine tasks which could be left to technicians. For post-graduate students, a 2-hour period for such reading should be included in the weekly work schedule.

59. Hospital pharmacists should have the opportunity to lecture to medical and nursing staff. Such teaching activity enhances their professional status, brings them into closer contact with other professions and provides an additional incentive for maintaining up-to-date knowledge and practice. Not only should it be regarded as a function of the job, but also pharmacists, in addition to the departmental head, should be encouraged to participate and to develop abilities in this field.

60. The provision of a technical pharmaceutical information service is an important function of a pharmacy service and serves *inter alia*, as a means of keeping medical, pharmacy and nursing staff up-to-date with continuous changes and developments on matters concerning drugs, eg. dosage, formulation, methods of administration, alternative preparations, possible side-effects, compatibility, etc. It is important, therefore, that adequate space should be provided for an up-to-date library service with proper systems for filing and retrieval.

Equipment

61. Adequate arrangements for equipment maintenance should exist involving the appropriate level of planned preventive maintenance to minimise the possibility of breakdown. In addition, to meet emergencies when essential equipment breaks down, reciprocal arrangements should exist with neighbouring Pharmaceutical Departments.

Accommodation

62. In the Pharmaceutical Department's stores, a system should be evolved which will ensure an adequate turnover of stock. Certain items have a limited life and failure to use these before they are out of date can be very costly. The principle of all types of issuing systems of first in, first out, should almost invariably be adopted. It may be possible to load shelves from the back so that old stock is moved towards the front from which goods are picked. Where items are received and stored in bulk containers, the marking of the date of receipt clearly on the container so that it can be seen at a glance helps to ensure a proper turnover. When a change of fashion makes stock items no longer popular with the user, efforts should be made to persuade users to accept old stock until it has been cleared.

63. There should be a periodic review of all slow moving stock to prevent obsolescence or deterioration. Items which are, in fact, obsolete should be ruthlessly weeded from the stores, declared obsolete and disposed of.

64. It is important, not only to make the most effective use of space, but also to minimise handling and to enable selection to be carried out with the minimum of effort to ensure that the most appropriate combination of storage facilities is available. Adjustable fixed location racking will provide the most suitable storage facility for the majority of the items in the stock range but there are items which are best stored on pallets. Whilst the general use of mobile racking (manual and powered) will, in normal circumstances, be difficult to justify for economic reasons, its use may be justified where building costs are high or where severe limitations of space exist. Increases of between 40 per cent and 60 per cent in usable storage space have been achieved through its use. It is, however, more likely to be suitable for slow moving items than for those for which there is a regular demand requiring frequent access to the storage compartments.

65. Steel fixed location racking is more expensive than wood but it is cleaner and stronger. Wood has the additional disadvantage of creating a fire risk but is more resilient, can absorb moisture better, minimising or avoiding condensation dripping, is rust and corrosion proof, is a poor conductor of electricity and can be agreeable to staff, particularly in cold weather.

66. Racking can be open or closed ended, open or closed back, in a variety of heights and widths. It should normally not be more than 7ft 6in high and the shelves should be readily and simply adjustable in height to allow for changing practice. If adjustments are unduly complicated, storekeepers may be deterred from making any adjustments which may be necessary to achieve the most effective use of storage space. If the inside surfaces of shelves are painted in a light colour, for example, light grey, a better light reflection is provided than that given by the dark olive green which was more commonly used in the past. Whether shelves should be backed or covered at the ends depends to a great extent on the nature of the goods being stored. If there is little or no likelihood of items 'straying' from one shelf to another, then there is little point in providing backing or end pieces. Where, however, backing or end pieces are required, it may be more economic to provide them of steel mesh rather than solid steel.

67. Various types of stores location systems exist. Some systems are more appropriate than others for particular circumstances and operating conditions. The main features of the more widely used location systems are as follows:

(1) Spot location system. Stocks are positioned in any available space. The storekeeper memorises the location and is thus virtually indispensable. The chief advantage of this system is its effective use of space. Its main disadvantage is its probably inappropriate positioning of fast and slow movers, thereby creating high order assembly costs.

(2) The sequence system. Items are located in alphabetical, numerical or order pad sequence without regard to issue frequency, size, weight or volume. In an order assembly area considerable ground will be covered in collecting, say, 6 items which may be spread over a wide range of items. Therefore, careful analysis of all phases of the order assembly operation is essential for a sequence location system to be effectively applied.

(3) The size system. Under the size system, small items are placed at the front and larger items at the back of the store rooms. The advantage is that the greatest number of items are near the front area. However, it is also advisable to provide space at the front for the more popular large items in order to reduce walking while assembling orders. Size location systems should, therefore, be coupled with additional planning to provide stock positioning by demand.

(4) Popularity location system. In the popularity location system, emphasis is placed on demand and materials are so placed that the more popular items are located in the most advantageous positions. In addition, where conventional shelving is used, the central position of the unit is used for the small popular items, the upper shelves for

lightweight and least popular items and the lower shelves for heavy items.

68. It is likely that the popularity location system will be the most suitable for pharmacy stores as it combined the best features of other systems and, properly applied, should produce the most satisfactory results. It is important, however, to use stores staff experienced in the system and the need to cover staff absences should not be disregarded.

69. Within the Pharmaceutical Department itself, the sequence system is often found. This has considerable advantage where staff turnover is high, where post-graduate students are employed, or where non-pharmacy staff have access to the pharmacy in cases of emergency.

70. In dispensing areas used solely for out-patients, the popularity location system is probably most suitable.

71. In assessing the layout of the Pharmaceutical Department, the following points are worth bearing in mind:

(1) packing of ward containers should take place close to the storage rack containing sterile preparations since these are the most frequent, and often the most bulky, items sent to wards;

(2) stocks of clean bottles should be stored close to the filling point;

(3) replenishment stocks should be kept as close as possible to the Pharmaceutical Department;

(4) large benches should not be placed in the centre of the Pharmaceutical Department since they can prevent direct movement across the Department;

(5) storage and washing facilities for returned bottles should be adequate;

(6) special security should be provided for Dangerous Drugs and for drugs liable to misuse (see HM(70)1).

72. A study which reviewed the layout of the main Pharmacy Department at a teaching hospital of 700 beds is described in Abstract of Efficiency Studies No 6.

Selective Bibliography

73. The following publications contain information about the organisation of work in Pharmaceutical Departments:

Hospital O & M Service Reports: London. HMSO
No 9 *Ordering and Receipt of Pharmaceutical Supplies.*

Abstracts of Efficiency Studies in the Hospital Service: London. HMSO

No 6 *Layout of a Dispensary.*

No 54 *Dispensary Work.*

No 68 *Pricing of Drug Issues.*

No 75 *Index to Dispensary Stores.*

No 115 *Prescribing and Administration of Drugs.*

No 135 *Ordering, Requisitioning and Accounting Procedures - Pharmacy Department.*

HM(55)22 *Hospital Pharmaceutical Departments (Linstead Report).*

HM(58)17 *Control of Dangerous Drugs and Poisons in Hospital (enclosing the Aitken Report).*

- HM(59)43 *Hospital Pharmaceutical Departments.*
HM(61)78 *Hospital Drug Costs.*
HM(63)75 *Poisons Information Service.*
HM(64)74 *Prescription Forms EC10(HP).*
HM(65)22 *Quality Control of Hospital Supplies of
Drugs and Dressings.*
HM(66)33 *The Ordering and Receipt of Pharmaceu-
tical Supplies.*
HM(67)95 *Hospital Supplies Organisation.*
HM(69)18 *The Changeover to Prescribing and Dis-
pensing Drugs in the Metric System.*
- HM(70)1 *Security of Drugs Liable to Misuse.*
HM(70)21 *The Hospital Pharmaceutical Service
(enclosing Report of Working Party on
the Hospital Pharmaceutical Service –
Noel Hall Report).*
HM(70)36 *Measures for Controlling Drugs on Wards.*
- In addition the following documents are in course
of preparation:
Management Services (NHS): *The Organisation
and Work of Pharmaceutical Departments.*
Hospital Building Note: *Pharmaceutical Services.*

Index to Ratios and Yardsticks

Although the ratios and yardsticks listed in the Index reflect what might be called good practice using modern methods, it does not necessarily follow that they will without change serve as work study standards or management ratios in every hospital. It is only where a full work study has taken place that it is possible to calculate ratios which precisely fit the working conditions in a particular hospital or department.

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