FINAL REPORT

TO

ST. JAMES'S HOSPITAL

ON

THE DEVELOPMENT OF FINANCIAL SYSTEMS

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1. INTRODUCTION

We are pleased to submit this draft final report on the development of financial systems in St James's Hospital.

During the last seven months (mid May to November) we have carried out a detailed review of the financial systems in St James's Hospital and identified the problems of the present systems, and made recommendations for short-term solutions. We have also identified the financial and management information needs of the hospital and have drawn up recommendations for the development and operation of new financial and management information systems.

Several progress reports have been presented to the Steering Committee and a presentation was made to the department and function heads to acquaint them with the proposed new systems and to answer questions raised. An Interim Report was submitted to the Steering Committee in August, which included a detailed analysis of the present financial and management information systems, and set out our basic framework for the recommended new system. As a result of these steps, the Steering Committee agreed to the overall framework design, and we then proceeded to define the recommended system in more detail and to draw up an implementation plan.

Section 2 summarises our major recommendations made in the study. Section 3 comments upon the existing systems - which are described in more detail in the Interim Report. Recommendations for short-term action to be taken to improve the present financial systems are included in Section 4, and were discussed at the October progress meeting of the Steering Committee. Section 5 considers the basis for the framework of the new System and Section 6 describes aspects of the new System in detail. The resources that will be required to develop, implement and operate the new System are discussed in Section 7. A review of the major aspects related to the computerisation of the system and software that is available on the market which is compatible with the recommended System are described in Section 8. Section 9 is comprised of a detailed plan for the implementation of the System, including the initial stage of specification of hardware and software, their selection and setting of priorities. We have included our recommendations for priority areas and comments on specific points which are critical to consider during this period.

We wish to thank the Steering Committee and the Hospital Board for selecting us to carry out this most interesting assignment. Also we would like to thank all those in St James's who helped us by providing information and co-operation during the review.

We are confident that the new system once implemented and operating will provide the level of support needed by management to run the hospital smoothly and efficiently and to cater for the planned expansion during the 80's. We will be pleased to present the main features of the new system to the Board of St James's if the Steering Committee consider it desirable.
2. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

In this section we present a summary of the main conclusions on financial accounting and management information systems in St James's. We also cover the main recommendations made in this report.

2.1. Financial Accounting Systems

Our conclusions on the existing financial accounting systems are that whilst there are a number of good points associated with the systems now in use there are also a number of deficiencies which should be corrected. They relate primarily to the accuracy of financial information, the degree of completeness of the information on expenditure and the extent of budget control which is exercised. Our review has identified problems relating to the collection and processing of financial data which in turn has given rise to excessive workloads and delays in producing reports.

Part of the delay in producing financial reports has been caused by the lack of adequately trained staff to carry out this work. Whilst in our opinion the existing staff complement is sufficient to undertake the work satisfactorily we consider that the staff have not been exposed to a sufficient level of training to prepare them for the work to be done.

With regard to specific systems in operation we feel that Stock Control Systems in Central Stores, Pharmacy and Central Sterile Supply are inadequate. Accordingly we have made recommendations designed to substantially improve the level of control in these areas.

2.2. Medical and Medical Support Departments

Non-financial reports are produced annually and mainly for statistical purposes. These reports while of use for planning are of little value in day to day management. Statistical information contained in these reports, is in general not linked with financial data. This significantly weakens the value of such information. In addition there are a number of reports produced which have very limited application.
The absence of a management information system linked to financial systems gives rise to difficulties when deciding what non-financial reports are necessary and useful.

The procedures used to retrieve, code, record, and document data within the hospital are tedious and very labour intensive. Furthermore, a substantial amount of duplication of effort takes place. The introduction of a system which provides multiple outputs from single entry data channels would overcome the problem of duplication.

2.3. Short Term Improvements

In Section 4 we put forward proposals for implementing short term improvement in financial accounting. These relate to:

- Reporting Timetable: Changes in the timing of committee meetings and the impact of this on reporting deadlines.

- Non-Pay Expenditure: Changes to ensure availability of monthly report by 10th working day after month end.

- Invoice Processing: Changes to system of processing invoices and the matching of these with delivery dockets and price extensions.

- Technical Services: Changes in procedures relating to technical services reports.

- Communications: Improved communications between administration and accounts personnel regarding expenditure.

- Staff Training: Increased level of training including on-the-job and outside courses. Responsibility for setting up and implementing an annual training programme should be clearly identified with a particular individual. We recommend that normally this should be the head of the department.

- Payroll: Improvements in the method of data collection so as to reduce input preparation time, introduction of additional checking procedures.
Software Development at FDVH: Programme developments being carried out at present to financial systems which will be made available at FDVH will increase the amount of flexibility which St James's and other users will have regarding coding of costs. It will also facilitate posting of the nominal ledger.

2.4. Introduction of New Systems

The above changes when implemented will bring about improvements in existing systems. However, we believe that new systems are required in St James's if the hospital is to most effectively meet its management reporting needs at present and to an even greater extent in the future. We are therefore strongly recommending the introduction of new systems.

Such systems would be based on the concept of responsibility accounting, where costs incurred are allocated, to an extent which is feasible and desirable, to functional areas or departments. To effect this, costs must be classified and reported on under agreed headings for each department or cost centre. This has the immediate benefit that such costs once classified and allocated can be built into a detailed budget reported upon and monitored effectively as expenditure is incurred. If in addition the service provided, or activity undertaken in return for such expenditure can be quantified in a meaningful way and reported on in conjunction with expenditure reports then management is more fully equipped not only in the control function but in decision making and in optimum resource allocation.

To provide the level of information necessary to support this concept of responsibility accounting it is necessary to ensure that all systems are compatible with this and fully integrated. Each system should be capable of taking data in at source in an agreed format, processing it, feeding all other systems or sub-systems which require this data and ultimately producing reports in a form which is of direct use to management. The production of statutory reports should also be a capability of such systems.

The details of the proposed new systems, together with examples of the types of output produced and classification of costs are provided in section 6 of this report. The precise way in which costs should be classified and allocated, the extent of the allocation and the most appropriate reporting format should
be worked out in conjunction with each department concerned using agreed principles. What is important at this stage is acceptance of the concept and commitment to its introduction and use.

2.5. Resources Required

Given that agreement exists on the need for new systems as described above the next step is to assess the level of resources necessary to support such systems.

We have discussed in Sections 7 and 8 resources and options open to St James's. To develop, implement and operate the new systems it is necessary to have continual access to an appropriate computer installation. We have examined a number of alternatives and have concluded that in order to meet both short and long term requirements in the most cost effective manner the hospital should have its own in-house computer. We recognise that in the short term there could be some advantages in using computer facilities available elsewhere such as in the FDVH. Nevertheless the hospital cannot progress towards the type of integrated systems it needs in order to successfully manage its expanding activities unless it makes the decision to have its own in-house facility. This does not mean that the hospital must have a computer installed from the beginning. The first step is to specify the present and future requirements and then select a machine which best meets the systems. It is likely that a mini-computer will be sufficient to meet these requirements. Developments can then proceed off-site while the timing on the delivery of hardware is being worked out.

The machine selected should have the facility to link into the CDPS installation and continued use should be made of this computer to run certain systems such as Payroll.

We are also proposing that the new Systems be introduced gradually, phased over a period of 2 years with priority being given to financial accounting systems. The details of this are covered in Section 9 under Implementation.

The staffing and training requirements for successful implementation and operation of an in-house system are very important and in Sections 7.2 and 9.7 we set down staff complements and positions recommended.

Finance is another consideration, including hardware and software costs. These are discussed in Section 7.3 and in Section 8. It will be necessary to establish a project control Steering group who would be charged with the responsibility of implementing the System. This group would monitor and
control the work using outside consultants and staff to carry out the work. They would also agree priorities and set deadlines for completion of individual tasks.

Software support has been examined in some detail during the assignment and we have provided in Section 8 a description of the packages available which are of relevance to St James's together with an assessment of their strengths and weaknesses. The final decision on choice of software is inter dependent with machine selection.
3. REVIEW OF EXISTING SYSTEMS

As part of the assignment all existing systems were investigated in some detail, examining the objective of each system and appraising them against those objectives. All input forms and output reports were examined, and through interviews and discussions with staff; volumes, timeliness, accuracy and control were reviewed. This exercise was carried out over the two distinct categories of:

- financial systems
- medical and medical support departments

3.1. Financial Systems

The main financial systems comprise General Payments and Payroll to produce reports on pay and non-pay expenditure. These reports are then used to post the Nominal Ledger manually and to prepare Statutory Reports for the Department of Health. There are features for budget reporting which are not used at present.

In general, the Financial Systems are unsatisfactory from the points of view of timeliness and controls, which in turn has led to delays in Nominal Ledger posting and preparation of Statutory Accounts. Staff levels and training were seen to have a major bearing on the preparation of management information, along with the need for a greater awareness on the part of management as to their requirements.

The following systems have been examined in detail:

- Debtors
- Cash Receipts
- Creditors
- Central Stores
- Petty Cash
- Payroll
- Capital Expenditure
- Nominal Ledger
- Repair & Maintenance
- Engineering Stores
- Labour Cost Recording
- Outside Engineering Services
- Patient Property Records
- Catering
- Laundry
- Transport
In addition, the following management information reports have been examined in detail:

- Budgetary Statements
- On Call Statistics
- Labour Reports
- Expense Reports

These management information reports are based upon data from the financial systems, mainly the computerised General Payments and Payroll. Because these systems are inflexible, and there are a large number of coding errors and reporting delays the value of the management information is reduced.

Further detail on all existing systems is available in our Interim Report. In summary, our appraisal of existing systems revealed some good points. However, we noted the following deficiencies:

- There is a general lack of accurate detailed financial information resulting in the inability of the accounting personnel to answer detailed queries on cost expenditure.

- Complete up to date information on expenditure is not available. For example, information on expenditure from sources such as The Eastern Health Board is very much in arrears and this gives rise to variances in the Accounts.

- The workload involved in gathering source information for the payroll and general payments is excessive and the methods of data collection are cumbersome.

- Stock control systems for general stores, pharmacy, and central sterile supply are inadequate.

- Short and medium term planning is difficult due to lack of detailed accurate information.

- There is a lack of detailed activity measurements and statistics for the general service departments.

- Budgets do not contain enough detail and there is a lack of budgetary control.

- Accounts are prepared on a receipts and payments basis.
In Section 4 of this report we discuss the plans which we have drawn up to improve the existing systems.

3.2. Medical and Medical Support Departments

The systems in use by Medical and Medical Support Departments were investigated to:

- identify and classify all data currently collected and information produced
- identify the methods of data collection and processing and the subsequent use made of the information.
- determine the sources of information
- identify the decision making process and types of decisions made by each level

The units and departments which have been examined are:

- Laboratory
- Medical Records
- Nursing
- Occupational Therapy
- Pharmacy
- Physiotherapy
- Radiology
- Social Services

In summary, the present communication network is informal and based on day-to-day operating requests. There also appears to be two lines of communication - one for operating/financial matters, and one for policy matters and medical matters. There is substantial variation in the level and type of communications within departments, depending upon the individual structure of each department. The development of appropriate communication links is of major importance in assuring the smooth implementation and ultimate usefulness of a new system.

There is a general lack of financial information available to the Medical and Medical support Departments. This is due to some extent to the inability of the present financial systems to produce the information. The preparation of statistical information is primarily for Statutory reporting. Departmental operational statistics are
inadequate and uncoordinated. This is due in part to the inadequate procedures for the collection of data, and management's lack of appreciation as to the value of such information.

Further detail of our systems investigation is included in the Interim Report. In later sections of this report we made recommendations as to how these deficiencies can be overcome.

3.3. Reporting and Management Information

Our review revealed that there are a considerable number of financial and non-financial reports being produced by St. James's Hospital. These reports are summarised in Appendix I and may be categorised into three groupings:

- reports produced to comply with Statutory and other Department of Health reporting requirements.
- reports produced for financial control purposes
- hospital activity reports

In general, the Statutory and other Department of Health Reports are produced, in the required format albeit somewhat late. The majority of financial reports are produced on computer. There is a considerable amount of processing involved in input data preparation and conversion to final report. This is an unsatisfactory state for Statutory reporting and financial control.

Statistical reports are produced by Medical Records and relate mainly to inpatient and outpatient activity. The majority of these reports are produced at such frequencies to be of little use for operational management, although they do have a use in planning. The information in these reports is not linked with any financial data, and this limits them in decision-making and planning.

Data produced by St. James's Hospital is used in the preparation of the Hospital Inpatient Analysis (CHIPS) by the FDVH, and the Hospital Inpatient Record Summary (HIPE) by the Medical Social Research Board. Neither of these reports are used by St. James's.
Management information reporting proposals are discussed in sections of this report.

3.4. Data Processing

As part of our review of existing systems we examined the computer systems used by St. James's. Our examination covered several areas, however, the two main systems having an impact on accounting are General Payments and Payroll.

3.4.1. General Payments

General Payments are processed using a batch system operating on CDPS for a number of hospitals and health boards. Its objectives are to accept data, from external terminals. The data relates to invoices which have been received and approved by the Accounts department of St James's and to print details of the data in various sequences (e.g. by cost centre, by supplier etc). Cheques are then printed, and forwarded to St James's.

As a system it is very limited and inflexible. In no way does it help management to have an overall picture of liability, creditors balances or cumulative expense trends. Because of the very large hard files containing data for all hospitals using the FDVH. The system is inefficient and inflexible.

The coding facilities and the ability to account for budgets are extensive, but are not used to full effect by St James's. It is very difficult, to have any amendments or enhancements made to the system because of the multiple user impact and also lack of personnel at CDPS. We found that CDPS were playing a very passive role in the systems and were not reacting to user requirements. The systems have effectively lost the confidence of users. This is in part attributable to the Department of Health coding requirements which do not conform to user requirements. Maybe greater flexibility may result from the introduction of the new FDVH coding formats.
3.4.2. Payroll

As a payroll package, Unipay achieves its objective of accumulating data and calculating pay. As with General Payments, the reporting of management information is not good, and inflexibility makes it difficult to have enhancements made to the System.

There are currently two versions of Unipay running on CDPS, both are batch systems, and there is a definite lack of cohesion between CDPS and users as to which version should be used. Communication between CDPS and users appears to be poor, and consequently users are not defining their needs and CDPS are not designing or enhancing systems to meet changing requirements.

This system will have to be replaced by one which will provide more information of a management nature and which can be made to produce extra information easily when required.

Both systems fall short of what is necessary to exercise control over expenditure, and to provide information with which to plan and budget for the future.
4. FINANCIAL SYSTEMS - INTERIM DEVELOPMENTS

In Section 3 of this report we have shown details of our review of the existing systems and our comments on their operation and output. We later show a proposed framework for the development of new integrated systems to meet the individual requirements of financial and non-financial departments. Being an integrated system, it will be required to develop all component sub-systems to the full before the final results can be achieved. However, there are pressing needs in the financial and accounting systems which must be catered for in the shorter term to operate them more effectively, and to provide a sound base for development of proposed new systems.

To define what measures should be taken in the short term we further examined the current procedures in the Accounts Department and made recommendations as to how they should be improved.

4.1. Present Situation

The main areas covered are:

- Budgetary statement
- Staffing levels
- Problem areas

4.1.1. Budgetary Statement

There are Finance and Executive Committee meetings held on the second Monday of each month. This currently determines the deadline for the completion of the monthly budgetary statement. The financial information reviewed at these meetings is between 5 and 6 weeks out of date, e.g. the October meeting which was scheduled for the 13th of the month reviewed August expenditure.

Within a week after the finance committee meeting has been held a copy of the budgetary statement is sent to the Department of Health. This again means that the information is between six and seven weeks out of date when received by the Department.

This delay in the availability of up to date information creates considerable problems at the year end. For instance information on December's non pay expenditure is not available until February. This means that the preparation of the year end budgetary statement and annual accounts are delayed and in the meanwhile the current year information is being neglected. The result of this in the current year was that no 1980 expenditure figures were available to the Department of Health until June.
As well as the untimeliness of the information, differences have been arising between the cumulative amount of expenditure and income for the year as reported in the budgetary statement and that reported in the annual accounts.

4.1.2. Staffing Levels - Accounts Department

There are presently 20 staff in the accounts department. They are organized in the following functional and reporting relationship. The numbers in brackets represent the number of staff at each grade.

The staff numbers have increased by 100% during the last seven years. The present level of staff in the department should be adequate to handle and operate effectively the present systems, provided the systems were streamlined, individual work-loads more effectively organised and a serious effort made to train staff.

4.1.3. Staff Training

Staff training is most important in St. James's as many of the staff are young and untrained. In the present situation senior staff are so busy attending to day to day problems that they devote very little time to staff training. Until staff are properly trained the department will be unable to handle the workload even when streamlined.
4.1.4. Problem Areas

There are several reasons which account for the information being produced within the present unacceptable time span and the differences which arise between figures reported in the budgetary statement and those in the annual accounts.

These are:

(1) The present system of processing invoices is cumbersome. The current system involves invoices being processed in different areas of the hospital. This can result in considerable delays, duplications and additional work for Department Heads. An example of how delays can arise is illustrated in the following diagram.
These procedures cause the non-pay expenditure to be processed one month in arrears. This means as an example, that August invoices will be processed at the end of September.

(2) The E.H.B. monthly schedule of pharmacy costs is four months in arrears. A review of recent schedules disclosed the following dates of receipt:

- April '80 schedule received 20th Aug.'80
- March '80 schedule received 23rd July '80
- Feb.'80 schedule received 11th June '80
- Jan. '80 schedule received 5th May '80

The reason for this delay is that the coding of prescriptions and delivery dockets in the central E.H.B. pharmacy are four months in arrears. Until the documents are coded they cannot be sent to the computer for processing. The printouts after processing are sent to EHB for scrutinising by the EHB pharmacy and for preparation of the monthly expenditure report. This additional step contributes to the delay in James's receiving the expenditure notification.

(3) The technical services report which provides an analysis of the departmental expenditure over the various jobs carried out during the month has not been available since February. This information is essential for the Accounts Department so that they know the amount of technical services expenditure to be charged to St. James's.

(4) Communication between administration and accounts personnel can be lacking in instances and this can result in expenditure being incurred without the accounts personnel being aware of same. This means that it can be several months before the Accounts Department are aware of the expenditure and consequently no provision will have been made for the expenditure in the accounts.
(5) The present method of accruing non pay expenditure can result in differences arising between the amounts of expenditure incurred under a particular expense heading as reported in the budgetary statement and the amount reported in the annual accounts.

4.2. Recommendations for Short Term Improvements

This section presents our recommendations on the actions which are required to improve the present financial reporting system.

- Reporting Timetable

We recommend that the monthly Finance Committee Meeting be held on the third Wednesday of each month. This would mean that the budgetary statement will be available for the meeting and contain information relating to the previous month.

In order that the above timetable can be achieved, and the required information be available, the present problem areas must be rectified and we would recommend that the following actions be implemented.

- Non Pay Expenditure

Invoices relating to a current month will be processed at the end of that month. We suggest that the last day for submitting input to the F.D.V.H. computer department would be the fourth day after the month end. Allowing a maximum of three days for data processing, two days for marking off paid invoices in the invoice register and a day preparing the accruals summary, non pay expenditure information should be available by the tenth working day after month end.

- Invoice Processing

The system of processing invoices must be changed, so that all invoice processing will be centralised in the Accounts Department. This is the most effective method and will not result in any loss of control over expenditure by Department Heads.
In order that the system can function, the following procedures must be strictly followed.

- All expenditure incurred must be based on an order being issued. The order must be priced, coded and signed by the person responsible for the expenditure. A copy of each order must be sent directly to the Accounts Department.

- When goods are received in any department a delivery docket must be prepared in which particulars of all goods received are recorded and a copy sent to the Accounts Department.

- All invoices must be sent directly by suppliers to the Accounts Department.

- Invoices will be matched up with the appropriate order and delivery docket, prices extensions checked and if in order will be initialled for payment.

- If the documents do not tie up or any one is missing, the invoice will be sent to the responsible person for authorisation.

- The clerical officer responsible for processing the pathology invoices should be situated in the Accounts Department and not in the laboratory as at present.

Detail procedures for operating the proposed system are listed in Appendix 2.

- Technical Services

The technical services report must be available to the Accounts Department by the tenth working day after the month end. In order to achieve this objective the following procedures must be implemented.

- The amount of the weekly gross wages including P.R.S.I. for the E.H.B. employees who are working in St. James's must be obtained weekly from the E.H.B.
The departmental wages including P.R.S.I. must be obtained weekly from the Accounts Department in respect of St James's employees.

All time sheets must be analysed to ascertain where the men have spent their time.

Based on the time sheet analysis and the total amount of the gross wages, a weekly charge will be compiled for the various cost centres using the services of the Department.

Stores requisitions are prepared for all issues from stores. These must be priced and analysed manually over the various centres requesting the goods.

Invoices in respect of purchases for engineering stores should be charged to a stock account in the nominal ledger. The value of actual monthly issues based on the stores requisition analysis would form the basis of computing the actual charges for the month. The major advantage of this method is that it will provide overall control on engineering stocks, which is non-existent at the moment. The stock control would operate by taking stock in the stores and valuing it, for example, twice a year. This total valuation should equal the balance in the stock account in the nominal ledger.

Assistance must be given to Mr J O'Brien in the short term to enable him to bring the information of the department up to date. As stated earlier the analysis of charges for the current year are very much behind.

Communications

The accounts personnel must be informed about all expenditure incurred by people in the hospital so that provisions can be made for this expenditure, where appropriate, in the monthly accounts.
The normal method of communicating such information is through purchase orders, invoices, or changes in personnel records. There can be instances where these methods are not sufficient and in such instances the Accounts Department should be informed of the details in writing by the person initiating the expenditure.

- **Accruing Non-Pay Expenditure**

Year end accruals should contain details of individual invoices making up the year end accrual figures for each expense heading. These totals would be posted to the debit of the individual accounts at the year end and would be reversed in the following month by crediting the individual expense accounts. At the end of the month a new schedule of accruals is prepared incorporating details of all invoices accrued the previous month which still have not been processed. This process is repeated monthly.

- **Schedule of Pharmacy Expenditure**

The most effective solution to this particular problem is that St James' purchase their pharmaceutical requirements directly from outside suppliers. We estimate that their requirements are sufficiently large to enable them to avail of the discount facilities available from suppliers.

There are a further two options available. The staffing levels in the central pharmacy could be increased so as to bring the coding of documents up to date and keep them at that level. Precoded delivery sheets could be used as original documentation thus eliminating the coding of these documents. The coding of prescriptions which are estimated at 1000 per month could be eliminated by issuing stocks to a centre from which prescriptions would be issued. This centre would be treated as a separate cost centre.
Staff Training

Attention must be given to staff training. This particularly applies to junior staff as in most instances they are young and untrained.

The format of training should be a combination of on the job training and attendance at outside courses. It should be the responsibility of the department head to ensure that training is provided for his or her staff.

Payroll

Although the payroll information is up to date and available when required for the preparation of the financial reports, we looked at the system to see if there are any aspects which could be streamlined or controls improved.

The existing computer system requires detailed information on hours worked by each employee. This information must be recorded, collected, collated and batched prior to submitting to the computer department for processing. In order to reduce the time required for preparing the information and improving costings in the system we would recommend the following actions:

- A new attendance sheet format should be used for recording nurses attendances.

- In several departments details of hours worked by employees are submitted on pre-printed name sheets to the wages department. This information has to be transferred on to computer sheets. This duplication should be eliminated by recording the details initially on computer sheets.

- Payment by credit transfer (especially monthly payroll) should be encouraged.

- At frequent intervals a number of employees wages records should be selected and a check carried out to ensure that incorrect hours are not being entered on pay sheets.
4.3. Objectives of Interim Proposals

4.3.1. It must be stressed that the major objective of the interim proposals is to ensure that existing systems function efficiently. In no way will the computer processing or report formats change from those specified in the FDVH System; i.e. General Payments and Payroll Listings.

In achieving greater efficiency, the benefits will be seen in more timely preparation of accounts and the budget statement, more streamlined clerical routines and the elimination of the excessive duplication which now exists. In producing accounts by the third Wednesday of the month following that being accounted for, management will have the opportunity to make decisions on more up-to-date information than at present.

Although the computer reports will not change during the interim phase, the format of the monthly accounts could change (bearing in mind the D.O.H. requirements) if the Finance Committee or Accounts Management so desired. This is possible because the accounts are prepared manually from the computer printouts.

4.3.2. The second, and more far-reaching objective is that, in order to achieve the desired management information system, as outlined in Section 6, efficient clerical procedures must be established on which to base the new computer systems. When the interim procedures have been implemented, management and staff will have a new awareness of the potential use to which up-to-date information can be put. This, in turn, should lead to active participation in the design and development of new systems. It is essential that management and staff play an active role in the various stages of the implementation plan discussed in Section 9. This role should extend to St. James's Hospital personnel defining report and accounts formats, ultimately in Medical and Medical Support areas in addition to Accounts.

The proposed systems are computer based and comprise individual systems which integrate to provide total management information. It is unlikely that many aspects of the General Payments System will remain in the new system, whereas Payroll processing will not change except in the area of responsibility accounting coding and integrated with a manpower planning system.
However, it is essential for St. James's to move from the interim systems to the proposed new systems since the requirements cannot be met by the interim systems.

We realise that the implementation of these recommendations will require changes in the method of operating in several departments.

Full commitment is required from senior management to ensure that these changes are introduced and followed through and that junior staff are encouraged to complete the implementation.
5. BASIS FOR THE NEW SYSTEM

5.1. Introduction

In our Interim Report and in subsequent discussions with the Steering Committee, we have put forward our proposals on a framework for the new System. The Steering Committee has agreed with this framework.

The basis for the new System is that all data being used in any system, should to the greatest extent possible be integrated and utilised in the production of management information. The concept of the new System is one of responsibility accounting, where costs are collected for cost centres and retained for reporting to the relevant department head. In the non-financial areas, systems should produce information on the number and type of activities carried out in the departments/units. All data would then be compiled to produce regular and on-request reports for current and cumulative expenditure.

In adopting the idea of integrated systems we have considered the changes which will be required from present computer procedures. For example, the input of data will be validated against multiple criteria to cater for the requirement that it be used in the sub-systems. The printing of controls and maintenance of audit trails are important to ensure that all sub-systems are in phase and that adequate recovery procedures are available. Other criteria which are important in integrated systems are flexibility and ease of use.

5.2. Responsibility Accounting

All costs incurred are directly or indirectly allocatable to one or more functional areas of an organisation. Therefore it follows that a functional head has responsibility for incurring the cost. Responsibility Accounting is the method whereby costs are classified at source and reported upon under agreed headings for each cost centre.

The most important feature of such a system is that all costs are related to budgets for each cost centre. Costs and budgets can be subdivided into identifiable categories or sub elements of cost, as long as these features are identifiable at the source of the information.
The advantages of such a system for the cost centre head include the fact that he/she has information with which to justify and control expenditure and to make a meaningful input to budget setting. From an overall management viewpoint, St James's hospital will have information to control all the functions within the hospital and also to communicate with the Department of Health, the Eastern Health Board and other external agencies.

The same system will allow the management of St James's to identify and control revenue items if recharging were required and subsequent integration with Debtors would control billing for such items.

5.3. Framework of New System

We have devised an outline framework for the development of an overall management information system. A diagram of the framework appears on the following page.

We stress that this framework constitutes a suggested outline design, using a modular approach where individual systems are integrated to produce financial and statistical management reports. In such a system the quality of the management information depends upon the successful operation of the individual systems.

There are some basic systems and procedures within medical and medical support groupings which must be developed early in order to provide the accounting systems with the information they require to produce the Nominal Ledger and required reports.

A number of important systems are now discussed.

5.4. Payroll

It is stated elsewhere in this report that the current Payroll System is adequate as far as analyses are concerned, although delays occur and reconciliations sometimes take a long time to complete.

With the objective of allocating costs in the proposed responsibility accounting context, greater detail will be required from the Payroll System. For example, the attendance books data will become more important in deciding sub cost centre costs, e.g. individual wards.
A major addition to the Payroll System, or an additional system in parallel, will be the facility to set and amend budgets for whatever level management decide for reporting purposes. At first it will be difficult to apply budgets in any great detail, but when the budgeting system is closely linked to the payroll, as reports are produced, it becomes easier to apply budgets to more definitive levels (say grade by sub-cost centre and month by month).

5.5. Non Pay Expenditure (Creditors)

The objective of a Creditors System is to supply information and control for the management/financial accounting system and also to supply details of costs incurred for the costing (responsibility accounting) and management information systems.

The usual areas to be catered for are:

- Maintenance of an invoice register
- treatment of accruals
- maintenance of a creditors ledger
- cheque issue
- debt ageing
- nominal ledger interface

5.6. Debtors

The requirement for a comprehensive Debtors System at St James's Hospital may be of a fairly low priority. However, at a later stage of development, a link between the identification of services performed for outside agencies and the billing for these services should be considered.

5.7. Stock Control

One of the major components in calculating the total expenditure of any cost centre is the application of support/service costs incurred on its behalf. It is essential therefore to have a system to control the allocation of costs to the relevant cost centres. In addition, to preserve control and integration, stock values for the Balance Sheet must also be accounted for. The Department of Health require information on stock balances as part of their regular reporting procedures.

There are controls required for Pharmacy, General Stores, and Central Sterile Supply. Pharmacy should have responsibility for purchasing and storage of stock. Purchasing and control of stock for General and Central Sterile Supply should be centralised. However, for such speciality departments as
Laboratory and Radiology coded orders should be generated by the department.

5.8. **Costing / Nominal Ledger**

All prime cost data will be controlled from an accounting viewpoint in the systems outlined above. These costs are used, on the one hand to produce regular accounts, and on the other hand as the basis for a costing system.

The most important consideration is that all data must be identified and coded at source. In this way, there is no major requirement for extra data input time and there is less chance of discrepancy through data being in the accounts but not in the costing system. Reconciliation and control are therefore aided by the proposed integration.

5.9. **Budgets**

Budgetary control has been discussed in reference to Payroll. In Payroll, as in other systems budgetary control is used to monitor actual costs against expected costs, for the purpose of control.

In the overall management information sense budgetary control is an essential management tool for monitoring progress against agreed objectives and to give timely indications of deviations from plan.

A budgeting system should be introduced gradually, on a phased basis, the more actual detailed results are collected, the more budgets will be prepared for subsequent account periods.

It could become a very effective management tool in both financial and operational reporting.

5.10. **Cost Allocation**

It is desirable that as many costs as possible be directly allocated to cost centres and sub-cost centres. If costs have to be applied to more than one cost centre, then the cost centres should be identifiable at source, for example, when coding an invoice.

The next level of allocation is the spreading of apportionment of costs over a number of cost centres on some pre-agreed basis for example catering costs on the basis of the number of meals supplied to each cost centre.
The least attractive allocation, and one which we are not proposing at this stage, is to apportion costs on some arbitrary basis for example, apportionment of administration costs on a cost to date basis. This method is usually used only in a system of total absorption costing, and this we are not recommending.

We have drawn up a schedule of cost centres and a basis for allocating costs. The schedule is illustrated in Appendix 3. We stress that this schedule is the initial attempt at allocating costs and developing cost centres and during the process of further refinement there may be alterations required.

5.11. Pharmacy

A major non-pay expenditure area is Pharmacy. We have made some interim recommendations to enable St James's to ascertain the expenditure on pharmacy. In the overall management information system we are recommending a pharmacy system which would have stores component plus those patient oriented aspects which would contribute to a streamlined operation. We recommend that this pharmacy system be implemented as an early priority within the total systems framework.

Any system which is introduced would have to be capable of operating within the present pharmacy system i.e. centralised distribution to ward stock based on ward requisition. It would also have to have the capacity to grow with the Pharmacy System to a more patient based system. The core of both the stores and patient system is an on-line drug data base incorporating drug listing (generic and trade names), drug number, drug description, drug security level (controlled drugs have an audit report), unit of issue, route of administration, allergy information, and price. The present stock lists could act as the basis for the development of the data base. Consultations would have to be carried out with Pharmacy, Medicine and Nursing to guarantee that the data base would meet each group's requirements.

In addition to the drug data base the stores system should include:

- Predetermined order capability
- Floor restock lists according to predetermined levels
- Medication lists for each ward
- Automatic label generation for floor stock and out-patient prescriptions
The October 1980 SKC presentation showed some sample printouts (reports) which would be produced from the system we are recommending. These reports illustrate the result of the integration of financial and non-financial information directed at cost centre reporting. The reports are included in Section 6 for your reference.

5.12. Medical Support Departments

The Medical Support Departments include:

- Radiology
- Pharmacy
- Laboratory
- Physiotherapy
- Social Services
- Occupational Therapy
- Stoma Care
- EKG
- EEG

Each of the departments have been discussed in detail in our Interim report and Pharmacy has been discussed in detail in the previous sections. The major aspects relating to these departments which must be considered at this stage are related to the improvement of financial and management information within the overall context of St James's Hospital. These aspects include:

- Stock control (purchasing, issuing, pricing)
- Work scheduling
- Statistical recording and analysis
- Clerical procedures
- Reporting

Each of the above features are important in that they generate the details required by the integrated system, and as an added benefit increase departmental efficiency by streamlining procedures and increasing the timeliness of reporting.

Systems that are developed should have the eventual capability, where required, of interfacing with the departmental medical computerised systems, for example in Radiology and the Laboratory.

The above features can be introduced as part of the accounting and finance module. Whether they constitute part of the on-line system from an early stage or operate primarily on batch mode is a decision to be made when priorities are set.
The departments should be phased in over the implementation period, and we would suggest the following order:

- Pharmacy
- Radiology
- Laboratory
- Rehabilitation departments
- Social Services

5.13. Patient Administration

The Patient Administration System is responsible for the generation of non-financial data as a result of inpatient, outpatient, accident and emergency and various other patient related activities. At present the Medical Records Department is the centre of this system. It produces hospital statistics as well as carrying out functions such as patient registration, appointment scheduling and medical record storage. We suggest that this Department remain the focus but that it be formalised to incorporate the aspects of Patient Administration including:

- maintenance of the Master Patient Index
- patient admission/transfer/discharge system
- waiting list production
- statistical production and analyses
- appointment scheduling
- transport scheduling

The above systems should be computerised and the modules should be integrated so that data entered through one module updates files used by all. These modules could also be linked, in time, to a nursing module which would aid nursing through the production of:

- on-line medication lists
- schedule of patient services
- nursing care plans
- staff analysis by levels of care

The priority for implementing these various features has to be set, however, the Master Patient Index is key to the production of statistical data, example bed census and activity analysis. We would recommend that the inpatient components be implemented after the M.P.I. and then the outpatient components be implemented. This would enable St James's to have management information for the higher cost and more involved inpatient area, before proceeding to the outpatient component.
5.14. **General Support**

The General Support departments include Catering, Transport, Maintenance and Engineering, Laundry and Housekeeping. Stores may also be included with General Support, however since it forms the basis for the major component of non-pay expenditure we have allocated it to the General Administration group along with Payroll (Personnel) and Accounting. The main system requirements of the General Support Departments relate to data contribution to the overall integrated system to enable costing per cost centre. Benefits to internal operations related to improved efficiency by work scheduling, to enable job costing for planning and evaluation purposes may also be accrued.

These requirements are relatively straightforward and should be incorporated at an early date within the overall system. Separate on-line access is probably not financially warranted at the early stage. We are therefore recommending a combined administration unit for General Support which would service these departments. This administration unit would have on-line access and be responsible for the production of daily work schedules, input of activity statistics, production of activity analyses, and costing reports and input of data into the accounting systems.

5.15. **Management Information System**

The proposed management information system will have the facility to take data from:

- the accounting systems
- budgets
- operational statistics

and produce management reports such as those outlined in Section 6. These reports represent a sample of what we consider as basic products from the Management Information System.

The Management Information System depends entirely on information supplied by hospital sub-systems. Logically it cannot function at its maximum potential until the sub-systems including the accounting systems have been installed. Nevertheless some benefits can be realised early if some manual input is incorporated with the computerised data.
5.15.1. Reporting System

There are various reporting requirements that must be catered for in the Management Information System. Statutory Reports must be produced and in addition various management reports and sector reports are required by the hospital management.

The management reports required by each manager within the hospital will be determined at a later stage. However, we are recommending that consideration be given to reviewing the kinds of information used at each level in the hospital (selectivity), and where possible exception reporting be introduced.

In general the use made of information should determine the frequency and type of report that is produced. A brief examination of three important areas within the hospital may clarify our concept of selection and exception reporting and initiate thought as to what specific reports are required.

**Finance**

Figure one overleaf shows examples of the type of information required at different levels. The Operations Procedures level is involved with coding and data entry to produce the reports with which first line management control the hospital finances and higher management plan.

**Personnel**

Pay costs (expenditure) account for approximately 70% of the total hospital budget. Personnel in such a labour intensive organisation as a hospital are an important resource. Figure two overleaf illustrates the hierarchy of information requirements, and products incorporated within our recommended system.

The System will provide for the basic Payroll system and cheque production and in addition it will have a Personnel system which will contribute to productivity, ease of operations and longrange manpower planning.

**Patient Administration**

The patient administration system forms the core of non-financial data input and as such occupies a place, within the management information system, equivalent to finance and accounting.
FINANCE AND ACCOUNTING

STRATEGIC PLANNING

Accounting Policy
C.P. Policy
Integration
Management Information
Capital Requirements

FINANCE COMMITTEE

OPERATIONS PLANNING

Account Production
Cash Forecasting
Capital Forecasts
Budget Reporting
Budget Amending & Recompilation
Statutory Accounts
Computerisation

FINANCIAL ADMINISTRATION

CONTROL REPORTING

Audit Trails
Balances Control
Nominal Ledger
Accruals/Repayments
Trial Balance

COST CENTRE

OPERATIONS PROCEDURES

General Payments
Ordering/Purchasing
Invoices
Coding
Reconciliation

Payroll
Attendance books
Overtime/holiday
Sickness/Leave
Cheques/Credit transfer

Bank Reconciliation
Cheque Issues
Cheques Paid
Lodgements
Charges

Stock
Ordering
Goods
Receipt
Invoicing
Usage
PERSONNEL

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<td>Benefits</td>
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<td>Time Reporting</td>
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FIGURE 5.2
FIGURE 5.3

PATIENT ADMINISTRATION

STRATEGIC PLANNING

Needs
- Inpatients
- Outpatients
- Clinics

Resources
- Staff
- Finances
- Facilities

EXECUTIVE COMMITTEE

OPERATIONS PLANNING

Census Forecasting
Outpatient Forecasting
Inpatient Service Utilisation
Clinic Utilisation
Demographic Trends

MEDICAL ADMINISTRATION

CONTROL REPORTING

Master Index
Occupancy
Patient Mix
Clinic Availability
Room Availability

COST CENTRE

OPERATIONS PROCEDURES

Inpatient A/D/T
- Registration
- Admit
- Discharge
- Transfer
- Scheduling

Outpatient Scheduling
- Registration
- Scheduling

Medical Records
- Registration
- Abstracting
- Locating
- Statistics
- Coding
- Reporting
Information needs, such as those illustrated in Figure three overleaf should eventually be met for each level, by the recommended system.

5.15.2. Types of Reports

As discussed previously, various types of reports will be produced by the System including:

- Statutory and Department of Health Reports
- Management Reports
- Sector Reports

Statutory Reports
The format and information requirements for government reporting including Statutory reporting are set out by the Department of Health. As discussed in section three there are some problems associated with the production of these reports. The recommended new System should overcome these problems by improving the clerical procedures associated with data collection and computerising the production of the information required for the reports.

Management Reports
Management reports will be produced, by the System in accordance with the requirements of the various management levels. They will primarily consist of operational financial data showing current expenditure, cumulative expenditure, variances by value and percentage etc. Several examples of the type of management reports which we consider will be of use to St James's management are discussed in Section 6.

Sector Reports
The two main objectives of sector reports are to show the sector (cost centre) heads the expenditure which has been incurred in their areas of responsibility and the statistical relationship of expenditure to level of service, according to agreed heading. These reports should be useful in allocating budgets to specific sectors and for costing services for planning purposes. Suggested formats for the reports are discussed in Section 6.

As well as producing reports according to predetermined formats the management information system should make it possible for managers and department staff to enquire from the System particular useful information.
Instead of programming reports for such occasions, the system will allow interrogation through visual display terminals programmed to give immediate response. This Interrogation/Enquiry feature is particularly useful in Pharmacy, Stores and some of the medical support areas such as Patient Administration.

5.15.3. Forms Control and Documentation

In Section 3, we commented upon the cumbersome clerical procedures currently in some areas, and related to this we noted the deficiency in some of the forms being used for processing data. In many cases forms are "just born" because certain information has been requested. No consideration is given to their extended use and impact on the system. Forms design will be carried out in conjunction with the overall exercise of implementing the new financial and management information system. However, in addition to this we recommend that some consideration be given by the hospital to an overall review of forms design and control.

5.16. Transition to the New System

In the financial systems, the existing General Payments System will be completely replaced and the Payroll System extended or replaced to provide more management information. Debtors and Stock Systems are totally inadequate and will be overhauled in the proposed new system.

In Medical, Medical Support and General Administration areas, existing systems for data collection will be extended, and new coding systems devised to provide greater analyses.

The integration of financial and non-financial data for reporting will require that all systems be updated. The desirability of having all systems compatible is a major reason for proposing that St. James's use an on-line in-house mini computer. With the complex extension and development plans for the site, parallel development of information systems is all the more important.
PROPOSED NEW SYSTEMS

Among the terms of reference for the assignment are "identification of the financial and management reporting needs" and "making recommendations on the ....... integration of financial and management accounting". In section 5 we have described in broad terms the framework for proposed New Systems and the basis for each of the component subsystems. In this section we discuss the Systems in some further detail under the headings:

- Objectives
- Achieving the objectives
- Systems illustration

6.1. Objectives

Financial and management information, to be of any value, must be accurate, and must also have the qualities of

- usefulness
- simplicity
- flexibility
- timeliness

6.1.1. Usefulness

The most important tool in managing a large diverse organisation such as St James's is information. It is important that the Hospital Board have accessibility to the information required to control, organise and plan the future, long term and short term.

6.1.2. Flexibility

We discovered that the major problems with the existing systems relate to inflexibility, and that this is one reason why systems have fallen into dis-use. In our proposed design we have therefore emphasised the need for greater flexibility, especially in reporting.

6.1.3. Timeliness

Another factor which has reduced the value of existing system reports is that they take a long time to be produced. In the new system it is important to speed up the report printing through improved procedures and schedules. A timetable of report frequency is one of the tasks to be performed in the detail design phase of the Implementation Plan, discussed in section 9.
6.2. Achieving the Objectives

To achieve the stated objectives the Hospital Board and each of the departmental heads and function managers will have to participate in the detail design phase. Staff participation from the early stages of design contributes to the usefulness of final systems to the hospital and benefits the staff in knowing the systems from the "ground up".

6.2.1. Design

Our proposed system outline is based upon the concept of responsibility accounting. To achieve this we have analysed the different areas of the hospital into Functional Centres. There are three types:

- Medical Services (e.g. medical intensive care)
- Medical Support (e.g. pharmacy)
- General Administration & Support Services (e.g. engineering maintenance)

A full list of the cost centres and sub cost centres is available in Appendix 3. This list was developed as a result of our initial review and is subject to revision after consultation with St. James's staff and after detailed design is in progress.

For each of the Functional Centres, and Cost Centres, the system would initially collect the direct costs:

```
DIRECT COSTS
\_/\ \\
| PAY | NON-PAY |
```

At a later stage in systems development, the indirect costs, i.e. cost incurred on behalf of one cost centre by another cost centre, would be considered for allocation to those areas on whose behalf the cost is incurred. Examples are:

- Pharmacy (stock control)
- Transport (patient movements)
- Administration (equipment for wards)
- Administration (electricity, rent and rates etc)

Whereas the objective in reporting direct costs is to allow individual managers to manage and control costs against budget, the objective in showing fully allocated
costs to the medical service cost centres is to provide management information for planning.

6.2.2. Procedures

Part of the implementation plan involves the design and documentation of procedures for operating the systems. In outline, the main expenditure areas are Pay and Non-Pay. In table 6.1 which follows we show how the proposed systems for Pay and Non-Pay should provide enough data for

- Payroll and Creditors
- Financial Accounts
- Responsibility Accounting

In the design phase, these systems and others would be defined in detail and all procedures defined as to responsibility, timing etc. Form design would also be part of detail and design.

TABLE 6.1 PROCEDURES

![Diagram of Pay and Non-Pay procedures](image)
6.3. Integration

The preceding diagram shows how the Payroll, Creditors and Financial Accounts (including nominal ledger) are to be integrated. In addition to these systems, table 6.2 illustrates how the systems in use by medical and medical support departments would be integrated to provide statistics and management information.

**TABLE 6.2 INTEGRATION**

- **PAY**
- **NON PAY**
- **MEDICAL / MEDICAL SUPPORT**
- **ACCOUNTS**
- **RESPONSIBILITY ACCOUNTING**
- **MANAGEMENT INFORMATION**
- **STATISTICS**
In 6.4. which follows we show some detailed examples which illustrate the concept of integration.

6.4. Systems Illustration

To test the adequacy of our proposed outline design, we have taken two specific examples of cost centres, to illustrate how the information would be reported. The two cost centres are:

- Medical Intensive Care
- Pharmacy

i.e. one from Medical Services and one from Medical Support.

Tables 6.3. to 6.6. deal with the build up of payroll data from cost centre level, through the groupings to final management reports. This example is treated only for Medical Intensive Care but applies equally to Pharmacy.

Tables 6.7 to 6.11 deal with Pharmacy stock control. We have emphasised elsewhere that the introduction of stock control should be given a high priority for implementation. This is necessary for proper stores accounting and control and also for use in the responsibility accounting concept.

Tables 6.12 to 6.14 show some examples of the type of statistics which are proposed to come from the system. Like all of the tables, these are samples only and in the detail design phase they can be altered to suit the users as necessary.

Table 6.15 shows how all the financial data and statistics can be incorporated to provide comprehensive information for specific areas. We have chosen the Medical intensive Care Unit to illustrate the report.
Table 6.3. PAYROLL DETAILS REPORT

This report provides the department head with payroll expenditure details for that department, with analyses by grade and by type of pay.

FREQUENCY - Monthly / Fortnightly / Weekly depending on pay period.

DIRECTED TO - Department Heads
### TABLE 6.3 PAYROLL DETAILS REPORT

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<th>Cost Centre</th>
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<th>Night Duty</th>
<th>Acting</th>
<th>Shift</th>
<th>Extra Maternity Theatre etc.</th>
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*Transaction listings to be available showing the individuals involved.*
Table 6.4. OPERATING REPORT - SUMMARY BY COST CENTRE

This table shows the totals for Medical Intensive Care from table 6.3. and illustrates how they can be incorporated with other relevant cost centre totals to provide information for the total Medical Acute service.

Budgets are incorporated to allow management to view trends, for the current period and for year to date. Variances are shown as value and as percentages of the actual expenditure. This report can be used as an "early warning" system to have variances checked and explained before they become too large.

FREQUENCY - Monthly / Quarterly / Annually

DIRECTED TO - Functional Managers
               Senior Administration
               Chief Executive Officer
<table>
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<tr>
<th>Medical Acute</th>
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<tbody>
<tr>
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<td>Budget</td>
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</table>
Table 6.5. OPERATING REPORT - SUMMARY BY SERVICE

This table shows how the total for Medical Acute compiled in table 6.4. can be incorporated with other service totals to provide overall expenditure for current period and cumulative. Budget comparisons and variance percentages are again shown to provide management with indicators as to how the total hospital is performing.

The various sub divisions of Medical Services Outpatient, Medical Support and General Services would also be shown to the same level of detail.

FREQUENCY - Monthly/Quarterly/Annually

DIRECTED TO - Functional Managers
Senior Administration
Chief Executive Officer
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<th>Variance</th>
<th>%</th>
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<th>Budget</th>
<th>Variance</th>
<th>%</th>
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<td>(1225)</td>
<td>(1.3)</td>
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<tr>
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<td>(17.6)</td>
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<td>(50,000)</td>
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<tr>
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<td>(22.8)</td>
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<td>(16.7)</td>
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<td>5,576,515</td>
<td>5,035,200</td>
<td>(541,315)</td>
<td>(10.7)</td>
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Table 6.6. SUMMARY OPERATING REPORT

This table provides management with higher level totals only. If further investigation of any figure is required, it is possible to trace figures back through the various tables 6.5., 6.4., and 6.3.

FREQUENCY - Monthly / Quarterly / Annually

DIRECTED TO - Functional Managers
               Senior Administration
               Chief Executive Officer
               Executive Committee
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<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Budget</th>
<th>Variance</th>
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<td>91,825</td>
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<td>(1.3)</td>
<td>926,515</td>
<td>935,200</td>
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<td>850,000</td>
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<td>1,500,000</td>
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<td>(16.7)</td>
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<tr>
<td><strong>Total</strong></td>
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<td>546,825</td>
<td>500,600</td>
<td>(46,225)</td>
<td>5,576,515</td>
<td>5,035,200</td>
<td>(541,315)</td>
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</tr>
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</table>
Table 6.7. PURCHASES

This is the first of the Pharmacy Stock Control reports. For stock control/stores accounting it is necessary to have adequate control over the stock levels, and to get sufficiently detailed information regarding stock movements. The examples we show in tables 6.7. and 6.8. are purchases (in) and requisitions (out). These statistics are further used in 6.10. and 6.11. to provide the department head and hospital management with useful information. Table 6.11. is especially necessary for Responsibility Accounting.

In table 6.7. Pharmacy Stock purchases are categorised by individual drug within drug category. Information is given by quantity and price, and supplier data is shown for use by the Pharmacy staff.

FREQUENCY - Weekly / Monthly / Quarterly / Annually

DIRECTED TO - Pharmacy Department Head (weekly)
                Medical Support Managers (monthly)
                Finance Department (monthly)
                Finance Committee (quarterly)
TABLE 6.7 PURCHASES

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<tr>
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<td><strong>Code</strong></td>
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<td>1</td>
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</tr>
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<td>2</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Tranquilisers</td>
<td>80</td>
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<tr>
<td>10</td>
<td>10</td>
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<tr>
<td>Local Antiseptics</td>
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<tr>
<td><strong>TOTAL</strong></td>
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</tbody>
</table>

Alternatively this report could be printed in supplier code sequence
Table 6.8. REQUISITIONS

Pharmacy stock is requisitioned by individual wards and units. This report shows the individual drugs, within drug categories which have been requisitioned for the current period. Quantities and values are shown, as well as the cost centre which has requisitioned. If more than one cost centre has requisitioned the same drug, individual data is shown (see drug code 10).

The method of valuation in this example is FIFO (first in, first out). The final method would be decided at the detail design phase.

FREQUENCY - Weekly / Monthly / Quarterly / Annually

DIRECTED TO - Pharmacy Department Head (weekly)
Sub Cost Centre Managers (weekly)
Medical Service Manager (monthly)
Medical Support Manager (monthly)
Finance Department (monthly)
Finance Committee (quarterly)
Executive Committee (quarterly)
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<th>Unit</th>
<th>Unit Price</th>
<th>Total Value</th>
</tr>
</thead>
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<td>50</td>
<td>10.00</td>
<td>100.00</td>
<td>Ward 1</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>5</td>
<td>2.50</td>
<td>12.50</td>
<td>Haematology</td>
</tr>
<tr>
<td>4</td>
<td>75</td>
<td>5</td>
<td>2.00</td>
<td>150.00</td>
<td>I.C.U.</td>
</tr>
<tr>
<td>Tranquilisers</td>
<td>130</td>
<td>462.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>8</td>
<td>5</td>
<td>10.00</td>
<td>80.00</td>
<td>Med. Day H.</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>50</td>
<td>2.00</td>
<td>10.00</td>
<td>I.C.U.</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>50</td>
<td>2.50</td>
<td>12.50</td>
<td>Ward 3</td>
</tr>
<tr>
<td>11</td>
<td>26</td>
<td>1</td>
<td>100.00</td>
<td>2600.00</td>
<td>Surgical I.C.U.</td>
</tr>
<tr>
<td>Local Antiseptics</td>
<td>44</td>
<td>2702.50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL** 174 3165.00 *

*Applied automatically by the system*
Table 6.9. STOCK CONTROL

This report takes the information shown in tables 6.7. and 6.8. and applies it to the opening stock in hand to report the stock at the end of the period in question.

In practice, the stock levels would be continuously updated, but this report is useful for examining trends.

FREQUENCY - Monthly / Quarterly / Annually

DIRECTED TO - Pharmacy Department Head (monthly)
               Finance Department      (monthly)
               Finance Committee       (quarterly)
<table>
<thead>
<tr>
<th>Drug</th>
<th>Opening Stock</th>
<th>Purchases</th>
<th>Requisitions</th>
<th>Closing Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>£</td>
<td>#</td>
<td>£</td>
</tr>
<tr>
<td>1</td>
<td>130</td>
<td>2450.00</td>
<td>10</td>
<td>250.00</td>
</tr>
<tr>
<td>2</td>
<td>310</td>
<td>3100.00</td>
<td>50</td>
<td>750.00</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>250.00</td>
<td>5</td>
<td>12.50</td>
</tr>
<tr>
<td>4</td>
<td>300</td>
<td>600.00</td>
<td>75</td>
<td>150.00</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>40.00</td>
<td>20</td>
<td>40.00</td>
</tr>
<tr>
<td>Tranquilisers</td>
<td>860</td>
<td>6440.00</td>
<td>80</td>
<td>1040.00</td>
</tr>
<tr>
<td>6</td>
<td>30</td>
<td>300.00</td>
<td>8</td>
<td>80.00</td>
</tr>
<tr>
<td>7</td>
<td>100</td>
<td>5000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>400</td>
<td>2000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>94</td>
<td>164.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>47.50</td>
<td>10</td>
<td>27.50</td>
</tr>
<tr>
<td>11</td>
<td>30</td>
<td>3000.00</td>
<td>26</td>
<td>2600.00</td>
</tr>
<tr>
<td>Local Antiseptics</td>
<td>674</td>
<td>10,512.00</td>
<td>10</td>
<td>27.50</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1534</td>
<td>16,952.00</td>
<td>90</td>
<td>1067.50</td>
</tr>
</tbody>
</table>

*see Table 6.7  see Table 6.8*
Table 6.10  DRUG UTILISATION

This report provides the hospital with much-needed statistics with which to control the use of drugs. Current and cumulative information is shown by quantity and value, and current prices can be used in attempting to formulate policy.

FREQUENCY  - Monthly / Quarterly / Annually

DIRECTED TO  - Pharmacy Department Head (monthly)
               Medical Functional and Cost Centre Managers (monthly)
               Finance Department (monthly)
               Finance Committee (quarterly)
               Executive Committee (quarterly)
### 6.10 DRUG UTILISATION

St. James's Hospital

#### Utilisation Statistics (By Drug)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Code</th>
<th>This Month</th>
<th>Year to Date</th>
<th>Stock</th>
<th>Current Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>£</td>
</tr>
<tr>
<td>Tranquilisers</td>
<td>1</td>
<td>40</td>
<td>300</td>
<td>100</td>
<td>2500.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10</td>
<td>90</td>
<td>350</td>
<td>3750.00</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>15</td>
<td>95</td>
<td>237.50</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>75</td>
<td>175</td>
<td>225</td>
<td>450.00</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>40</td>
<td>80.00</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>8</td>
<td>12</td>
<td>22</td>
<td>220.00</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>-</td>
<td>15</td>
<td>100</td>
<td>5000.00</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>-</td>
<td>50</td>
<td>400</td>
<td>2000.00</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>-</td>
<td>-</td>
<td>94</td>
<td>164.50</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>10</td>
<td>100</td>
<td>20</td>
<td>52.50</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>26</td>
<td>30</td>
<td>4</td>
<td>400.00</td>
</tr>
<tr>
<td>Local Antiseptics</td>
<td>44</td>
<td>2600.00</td>
<td>30</td>
<td>4</td>
<td>400.00</td>
</tr>
</tbody>
</table>

**TOTAL** 174 3165.00 1450 14854.50

*see Table 6.8*
Table 6.11. COST CENTRE DRUG UTILISATION

The merger of stock control statistics and Responsibility Accounting information is aided by this report. The amount and value of individual drugs requisitioned by individual cost centres, totalled by drug category and service area, provides management and department heads with the necessary control information.

FREQUENCY - Monthly / Quarterly / Annually

DIRECTED TO - Pharmacy Department Head (monthly)
               Medical Service Cost Centre Managers (monthly)
               Medical Service Manager (monthly)
               Finance Department (monthly)
               Finance Committee (quarterly)
               Executive Committee (quarterly)
<table>
<thead>
<tr>
<th>St. James's Hospital</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 6.11 COST CENTRE DRUG UTILISATION**

<table>
<thead>
<tr>
<th>Utilisation Statistics (by Cost Centre)</th>
<th>This Month</th>
<th>Year to Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>£</td>
</tr>
<tr>
<td><strong>Medical Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Intensive Care Unit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug 1</td>
<td>40</td>
<td>200.00</td>
</tr>
<tr>
<td>Drug 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug 4</td>
<td>75</td>
<td>150.00</td>
</tr>
<tr>
<td>Tranquilisers</td>
<td>115</td>
<td>350.00</td>
</tr>
<tr>
<td>Drug 10</td>
<td>5</td>
<td>10.00</td>
</tr>
<tr>
<td>Drug 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Antiseptics</td>
<td>5</td>
<td>10.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>120</td>
<td>360.00</td>
</tr>
</tbody>
</table>

**Ward 4**

| **TOTAL**                              | 174   | 3165.00| 1450  | 14854.50|

*see Table 6.8*
Table 6.12. SUPPORT COST CENTRE STATISTICS

This is the first example of support cost centre statistics reporting. Like all other reports, the detail can be altered during the detail design phase of implementation.

In the example shown in table 6.12, the Medical Intensive Care Unit's use of the services provided by the Radiology Unit is shown in comparison to the other areas comprising the Medical Acute service.

This information will be of value to the head of the Radiology Unit for collation with the cost centre expenditure reports for that area. If, for example, costs have risen above budget, it could be that the amount of tests have also risen substantially.

FREQUENCY - Monthly

DIRECTED TO - Medical Intensive Care (sub Cost Centre) Manager
Medical Acute (cost centre) manager
Medical Service Manager,
Radiology Department Head (cost centre)
Medical Support Manager.
6.12 SUPPORT COST CENTRE STATISTICS

<table>
<thead>
<tr>
<th>Medical Acute</th>
<th>Total</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Radiology Dept.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ward 1</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>14</td>
<td>8</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>13</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Med. ICU</td>
<td>79</td>
<td>40</td>
<td>19</td>
<td>14</td>
<td>6</td>
</tr>
<tr>
<td>Haematology</td>
<td>33</td>
<td>29</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Day Hospital</td>
<td>6</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ward 4</td>
<td>12</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>177</td>
<td>107</td>
<td>35</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

*Medical Long Stay*
Table 6.13.  WARD STATISTICS

In this report the costs from table 6.4. are combined with bed complement statistics to provide unit costs for comparison with the previous year.

Again we have shown the Medical Intensive Care Unit with the other cost centres which comprise Medical Acute. Other services and their cost centres would have similar information shown.

FREQUENCY  -  Quarterly / Annually

DIRECTED TO  -  Medical Acute Manager (cost centre)
Patient Administration Manager (cost centre)
Medical Services Manager (functional groups)
Functional Managers
Finance Department
Medical Advisory Committee
Finance Committee
Executive Committee
**TABLE 6.13** WARD STATISTICS

<table>
<thead>
<tr>
<th>WARD TYPE</th>
<th>WARD</th>
<th>Total Cost / Period</th>
<th>Available Beds / Period</th>
<th>Available Bed Days / Period</th>
<th>Used Bed Days / Period</th>
<th>% Occupancy</th>
<th>Cost Per Bed Day</th>
<th>Cumulative % Occupancy</th>
<th>Cost Per Bed Day</th>
<th>Last Year % Occupancy</th>
<th>Cost Per Bed Day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medical Acute:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ward 1</td>
<td>1</td>
<td>6200</td>
<td>14</td>
<td>420</td>
<td>358</td>
<td>85.2</td>
<td>17.32</td>
<td>86.0</td>
<td>199.66</td>
<td>84.5</td>
<td>14.50</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>5170</td>
<td>13</td>
<td>390</td>
<td>341</td>
<td>87.4</td>
<td>15.16</td>
<td>87.0</td>
<td>18.27</td>
<td>85.5</td>
<td>14.00</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>8175</td>
<td>20</td>
<td>600</td>
<td>440</td>
<td>73.3</td>
<td>18.58</td>
<td>80.0</td>
<td>15.00</td>
<td>81.5</td>
<td>12.75</td>
</tr>
<tr>
<td><strong>I.C.U.</strong></td>
<td></td>
<td>4850*</td>
<td>6</td>
<td>180</td>
<td>144</td>
<td>80.0</td>
<td>33.68</td>
<td>88.0</td>
<td>34.54</td>
<td>88.0</td>
<td>25.00</td>
</tr>
<tr>
<td><strong>Haematology</strong></td>
<td></td>
<td>9250</td>
<td>16</td>
<td>480</td>
<td>417</td>
<td>86.9</td>
<td>22.18</td>
<td>88.0</td>
<td>19.89</td>
<td>88.5</td>
<td>16.50</td>
</tr>
<tr>
<td><strong>Day Hospital</strong></td>
<td></td>
<td>7400</td>
<td>15</td>
<td>450</td>
<td>385</td>
<td>85.5</td>
<td>19.22</td>
<td>86.0</td>
<td>19.38</td>
<td>85.5</td>
<td>15.75</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>6550</td>
<td>15</td>
<td>450</td>
<td>360</td>
<td>80.0</td>
<td>18.19</td>
<td>83.0</td>
<td>17.54</td>
<td>85.0</td>
<td>14.50</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>4230</td>
<td>12</td>
<td>360</td>
<td>314</td>
<td>87.2</td>
<td>13.47</td>
<td>88.0</td>
<td>13.35</td>
<td>87.5</td>
<td>12.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>51825</td>
<td>111</td>
<td>3330</td>
<td>2759</td>
<td>82.8</td>
<td>18.78</td>
<td>85.24</td>
<td>18.55</td>
<td>85.0</td>
<td>15.50</td>
</tr>
</tbody>
</table>

*see Table 6.4
Table 6.14. PATIENT STATISTICS - SUMMARY

This table is an example of a total summary report for management which is cumulative (in the example it appears as ten months, as shown by the number of bed days compared with table 6.13.)

The ability to produce average length of stay, turnover interval and turnover rate is very important for reporting yearly statistics to the Department of Health.

FREQUENCY - Monthly

DIRECTED TO - Patient Administration Manager (cost centre)
Medical Acute Manager (cost centre)
Medical Services Manager (functional group)
Medical Advisory Committee
Executive Committee
## Table 6.14 Patient Statistics (Summary)

<table>
<thead>
<tr>
<th>Service</th>
<th>Bed Complement</th>
<th>No. Bed Days</th>
<th>Occupied Bed Days</th>
<th>Vacant Bed Days</th>
<th>Admissions</th>
<th>Discharges &amp; Deaths</th>
<th>% Bed Utilisation</th>
<th>Average Length of Stay (days)</th>
<th>Turnover Interval (days)</th>
<th>Turnover Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Services - Inpatient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Acute</td>
<td>111*</td>
<td>33300</td>
<td>31716</td>
<td>1584</td>
<td>1150</td>
<td>1200</td>
<td>95.2</td>
<td>26.4</td>
<td>11.32</td>
<td>10.8</td>
</tr>
<tr>
<td>Medical Long Stay</td>
<td>120</td>
<td>36000</td>
<td>35500</td>
<td>500</td>
<td>420</td>
<td>425</td>
<td>98.6</td>
<td>83.5</td>
<td>1.18</td>
<td>3.5</td>
</tr>
<tr>
<td>Geriatric</td>
<td>100</td>
<td>30000</td>
<td>27500</td>
<td>2500</td>
<td>300</td>
<td>310</td>
<td>91.7</td>
<td>88.7</td>
<td>8.06</td>
<td>3.1</td>
</tr>
<tr>
<td>Total</td>
<td>331</td>
<td>99300</td>
<td>94716</td>
<td>4584</td>
<td>1870</td>
<td>1935</td>
<td>95.4</td>
<td>48.9</td>
<td>2.37</td>
<td>5.8</td>
</tr>
</tbody>
</table>

*see Table 6.13*
Table 6.15. COST CENTRE FINANCE / STATISTICS REPORT

We have included this report to show how overall management information can be produced for individual cost centres. Table 6.15 comprises data which has been reported upon in tables 6.3. to 6.14.

For example, the pay details are shown in tables 6.3. and 6.4., the pharmacy requisitions in table 6.11, and the radiology utilisation statistics in table 6.12.

Note that sections 1 and 2 of table 6.15. are shown by value and sections 3 and 4 by quantity only. At a later stage of development, these quantities could be valued by the use of allocation codes and parameters.

<table>
<thead>
<tr>
<th>FREQUENCY</th>
<th>Monthly / Quarterly / Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECTED TO</td>
<td>Cost Centre Managers</td>
</tr>
<tr>
<td></td>
<td>Finance Department</td>
</tr>
<tr>
<td></td>
<td>Functional Managers</td>
</tr>
</tbody>
</table>
TABLE 6.15  COST CENTRE FINANCE/STATISTICS REPORT

<table>
<thead>
<tr>
<th>Cost Centre: Medical Acute</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Cost Centre: Coronary Care (ICU)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. **Pay:**
   - Pay: 4850 4600 (250) (5.4) 54,715 55,200 485 0.9

2. **Non Pay - Supplies:**
   - Pharmacy: 360 200 (160) (80.0) 1210 2000 790 39.5
   - Central Sterile Supply: 50 50 - 400 500 100 20.0

   - Services

   - Total: 5260 4850 (410) (8.4) 56325 57,700 1375 2.4

3. **Utilisation Stats.**
   - Lab. requests 90 600
   - Radiology requests 79 850
   - Lbs. laundry 2100 24,000
   - No. meals 180 1842
   - Transport 42 525

4. **Workload**
   - No. patient days 180 1800
   - No. units supplied - -
   - No. patients treated 10 90
3 FUNCTIONAL GROUPINGS

- Medical Services
  - "2 Sub-Groups"
    - Inpatient
    - Outpatient

35 COST CENTRES
- "6 Cost Centres"
- "5 Cost Centres"
- "10 Cost Centres"
- "14 Cost Centres"

93 SUB COST CENTRES
- "39 Sub Cost Centres"
- "16 Sub Cost Centres"
- "28 Sub Cost Centres"
- "Approx. 25 Sub Cost Centres"

FUNCTIONAL HEADS/SENIOR ADMINISTRATION
- MANAGEMENT LEVELS
  - FUNCTIONAL HEADS/SENIOR ADMINISTRATION
  - DEPARTMENT HEADS
  - OPERATIONAL/SUB-DEPARTMENT HEADS

RESPONSIBILITY ACCOUNTING STRUCTURE

Figure 6.1
6.5. **Use of Reports - As Illustrated**

The Functional Groupings, Cost Centres and Sub Cost Centres which we have developed after our review of the present St James's situation are illustrated in Appendix 3.

Figure 6.1. overleaf attempts to relate the cost centre structure and management levels and to give some illustration of the scale of cost centres we are proposing.

To illustrate how the previous reports - tables 6.1. to 6.15 could be used in a scenario management situation and related to the use of information by level as in Figures 5.1. to 5.3. we propose to work from the bottom (sub cost centre) up to management level (functional groups) to Executive Committee level.

Basic day to day operational data is fed into the system as an automatic by product of procedures. For example, when an order for drugs for the Medical Intensive Care Unit is filled in the Pharmacy, the type of drug, the number of units of the drug, the unit price, and total price, is put into the system. At the same time the computer is accumulating the drug information and the cost information into several data files. The information going into these data files can be retrieved in the report formats illustrated below:

**DATA FILE**

- Sub Cost Centre statistics for drug utilisation
- Expenditure per drug per sub cost centre
- Utilisation by drug showing expenditure per drug
- Utilisation statistics by drug showing up to date inventory
- Utilisation statistics per sub cost centre by drug, amount and expenditure

**REPORT TABLE**

- 6.11
- 6.11
- 6.10
- 6.10 & 6.9
- 6.8

To show how this information may be used let us say that the Pharmacy Department Head when reviewing Reports No. 6.9 and 6.10 notices that for the month in question the utilisation of drug Code 4 has risen and that the expenditure for this drug is now taking up a greater than planned portion
of the monthly drug budget. The information is now at level two i.e. control / reporting.

The Pharmacy Department Head, then reviews the cost centre drug utilisation Report Nos. 6.8 and 6.11 to see which cost centres are using drug code no. 4. It is discovered that the total utilisation for the month of drug code no. 4 was by the Medical Intensive Care Unit. A further review of the utilisation shows that the month in question has been the only month in which drug code no. 4 has been used by the MICU.

The Pharmacy Department Head communicates the findings to the Medical Support Manager and the Medical Services Manager at the monthly review meeting. The information is now at level three i.e. operations planning.

The Medical Services Manager, who has been notified of the situation prior to the meeting has reviewed with the Patient Administration manager the utilisation statistics of the MICU for the month in question and has noted that several patients were admitted with disease "X" requiring the drug code no. 4 for treatment. The information is at level two - control reporting. The Medical Services Manager has raised this case at the Medical Advisory Committee meeting and has found out that disease "X" is reported to be increasing in the population, and the incidence and the impact in the hospitals service area should be studied further. The Medical Services Manager presents these facts to the monthly review meeting in addition to the Pharmacists report. The information has now reached level three - Operations Planning.

The management group decides to take the following action:

- monitor the admissions to the MICU on a weekly basis for disease "X" - carried out by the Patient Administration Manager

- Monitor the utilisation of drug code no. 4 throughout the hospital and specifically in the MICU on a weekly basis - carried out by the Pharmacist

- review of situation in general re disease "X" by the Medical Services Manager / Medical Advisory Committee

- Report back to the management group in one month and if further action required in regards to acquiring additional financial resources (for Pharmacy) or in interpreting the patient statistics (population needs) that the case be brought to the Executive Committee. The information has now reached level four - Strategic Planning.
6.6. Summary

The foregoing examples of Management Reports meet the requirements for information at St James's Hospital. They have been drawn up as a result of our existing systems investigation and the need to reduce the deficiencies. They should be studied closely by department heads and by the hospital management.

The report formats, frequencies and levels to which the reports will be directed are suggestions based upon our initial review, however, these will have to be considered in more detail once the system definition is underway.

St. James's Hospital is going to expand during the 1980's and is going to be a very large complex organisation. To manage such an organisation, the most important tool for management is extensive and detailed information. It is now up to the managers and department heads, in financial and non-financial areas, to define their requirements and to participate actively in the detail design which must follow.
7. **RESOURCES**

In considering what options are available in developing fully integrated financial and management information systems as described in Sections 5 and 6 of this report (and in our Interim Report) St. James's Hospital must consider the resources required to implement each option. This fact is important even when considering the interim measure proposed to alleviate some of the problems relating to existing systems, and in preparing for the new system.

Resources can be considered under a number of headings, the major ones being:

- Computer facilities
- Staffing and Training
- Finance
- Consultancy

7.1. **Computer Facilities**

We are certain that to operate the proposed systems, St. James's Hospital should have an in-house computer capable of meeting all the requirements for financial accounting, statutory reporting, cost centre analysis, budgetary control and responsibility accounting and management information statistics. In-house facilities are necessary to give the required degree of independence and flexibility and to ensure that control of systems (maintenance and development) rests with St. James's Hospital.

It is difficult at this point to say what size configuration the computer facility should be. As can be seen from the Implementation Plan shown in Section 8, a detailed specification of requirements would first have to be prepared. This would include details of volumes and frequency of data input, and retention, processing and report output. Other points of relevance would be the proposed use of visual display units, multi programming, and integration plans involving non-financial systems.

A mini computer with adequate memory and disk capacity, using four visual display units and a fast printer would cost in the region of £50,000 to £60,000. Taking a lease rate of £25.00 per £1,000 over five years, the annual lease would, therefore, be £15,000 to £18,000. Annual maintenance charges are approximately 10% of hardware cost.
The choice of hardware is inseparable from the choice of software. Since one of the objectives of our assignment was to assess the software available, we have shown in Section 8 the findings of this assessment. If St. James's Hospital make a decision regarding hardware for other reasons (e.g. cash availability, the desire to stay with ICL, the desire to use existing equipment etc.) the range of suitable software is reduced.

Having seen what developments have taken place in America and Canada, it is clear that the more advanced software is available there. However, most of the systems are rather expensive, and some need very large computers on which to run. In addition, there would be amendments required to systems. None of the U.S. or Canadian systems run on ICL equipment.

There are many systems in the UK but there are few which have developed further than the existing systems in use in Ireland. One Area Health Authority, Tayside, has developed systems on-line and these might be relevant for St. James's if the FDVH computer were to be used.

Either way, St. James's Hospital must invest in computer hardware and software resources to install the required level of management information systems.

7.2. Staffing and Training

In our discussion of interim proposals for improving the existing systems we have stated that the staffing level of the Accounts Department (at 20) is adequate. In so saying, we have added that the level of training is totally inadequate. The training inadequacies have contributed a great deal towards the failure of existing systems to meet finance and management requirements.

In the development, implementation and ongoing operation of the new systems, emphasis must be put upon the staff resources, including training. We are strongly recommending a reorganisation of the present staff into new reporting relationships and the addition of several key functions and personnel.
Indicated following is the type of structure which we feel would be appropriate for the Finance Department to meet the needs of the new St. James's system.

An outline of the responsibilities for the three senior finance positions can be found in Appendix 4. Specific duties and responsibilities within the above structure have not been detailed. Definition of these should take place as part of the implementation of the new system.

Emphasis must be placed in the training of existing staff to enable them to carry out their functions more effectively and on the recruitment and training of new staff. During the course of our review we found a lack of training contributed to the poor performance of many of the systems. In order to overcome this deficiency we recommend that a Training Officer be appointed to coordinate the training for the hospital. The department heads and senior managers should identify and plan their training needs jointly with the Training Officer.

In relation to the training needs of the present accounting staff we have drawn up an outline for training suggestions which we feel would enable the present staff to perform their functions more efficiently and will make the outline available for discussion during the Implementation Phase.

7.3. Finance

Obviously there will be cost of investing in computer hardware and software and the recruitment of the necessary staff. Training will also cost money through attendance at external courses, paying a training officer and allowing time for attendance at in-house training sessions.
Payment for hardware can be a one-off payment or can be through leasing or rental. Payment for software is one-off except where the user requires to have all enhancements made available. In that case there is usually an additional annual licence fee. Hardware maintenance is payable annually (except when rented) and varies from 8% to 13% of the hardware cost. Other recurring costs will be for stationery, insurance, disks and other one-off costs of environmental changes such as air conditioning, floor covering etc.

7.4. Consultancy

Depending upon what decisions St. James's Hospital make with regard to future systems development, there would be a need for substantial consultancy input in the areas of:

- Project Management
- Computer Selection
- Systems Design
- Systems Development and Implementation
- Training/Documentation.

In Section 9, we have attempted to show how much consultancy time would be needed to complete the development. However, there are many factors related to determining this time commitment. Therefore, we suggest that at each step in the Implementation Plan the role to be played by the consultants be determined.

7.5. There are other resources, such as office accommodation special environmental conditions, organisation and communication, which the Steering Group will have to consider during the implementation of new systems.
8. ANALYSIS OF SOFTWARE AVAILABLE

Our approach to the overall assignment has been to first ascertain what type of system would be most suitable to meet the requirements of St James's Hospital, both from financial and non-financial management information viewpoints. In our Interim Report and presentations and elsewhere in this report, we have described the system which we are recommending. Having achieved agreement from the Steering Group on the proposed system concept, we examined the available software on the home market and abroad which comes closest to that system.

In assessing the software available we considered many different aspects. Among them were:

- Package V Developed Software
- Health Care V Commercial Systems
- In-house V Bureau Operation
- CDPS, FDVH Options
- Short and Long term options
- Ireland, UK, Europe, Canada and the U.S.A.

A general discussion of these aspects follows, in order to clarify them prior to evaluating the software options.

8.1. Packaged V Developed Systems

The processing of data on computer for hospitals, health care institutions and health authorities has been available for some years. Many systems have been developed for particular users to cater for financial, health and medical information requirements. Some of these systems have been standardised by their authors with a view to widespread marketing among similar organisations. These have become known as software packages.

Over the past ten years or so, the cost of computer hardware has dropped considerably due to technological advances. In the same period, the cost of developing software has increased substantially, to the point that it is much more cost beneficial if pre-programmed or packaged software can be identified which fully or substantially meets the user requirements.

Packages are suites of programs designed and written either with the immediate requirements of one user (system oriented) or the requirements of a specific market (sector oriented). The first type of package would almost always have to be amended in some way to meet specific requirements of other potential users. The effect of such amendments depend to a large degree on whether they relate to report formats.
only or whether data entry and procedures also require alteration. In the case of sector oriented packages amendment facilities are usually well catered for, although again specific user requirements may have to be included.

By ignoring all packages and developing specific programs tailored to meet exactly the specified requirements of the user, the most satisfactory result can be achieved. However, the cost of developing systems from start usually far exceeds the cost of pre-packaged software.

It is therefore, essential that prospective users of specific systems seek out systems which have already been developed, compare them with their stated systems objectives and evaluate which, if any packages are the most suitable. This has been our attitude in evaluating existing software which could fully or substantially meet the St James's Hospital requirements.

8.2. Health Care V Commercial Packages

In our recommendations we have considered financial and non-financial applications, and in management information we have proposed the use of financial and non-financial data in common reports. However, the financial systems and the use of responsibility accounting/cost centre reporting takes priority in systems developments.

Due to this factor we have considered, in addition to financial systems operating in hospitals and health authorities, commercial financial systems. Whereas the health and medical software is appropriate to hospitals and health authorities only, general financial software is common to all organisations.

We have found that there have been more developments in financial systems operating in commercial environments than in the Public Sector. This is largely due to the extra information required in commercial accounting as opposed to Statutory accounting. Another factor has been the non-availability of development staff in the Public Sector and the lack of development ideas and requirements from users. If St James's Hospital decide to operate on-line computer systems in house, there are many commercial systems which should be examined. One example is a contractors package developed by SKC for a client, which takes costs from payroll, creditors, and stock and, in addition to reporting on each of these systems individually and into the nominal ledger, reports costs incurred by contract. If we replaced contract by cost centre, St James's Hospital could operate satisfactorily under that system.
8.3. In-House V Bureau Operation

Later we discuss in some detail the systems we believe are most suitable and one of the factors considered is the hardware the systems require. If the hardware capability requirement is very extensive and costly and requires staffing expertise, the option of running the systems on bureau must be considered.

There are advantages and disadvantages to systems operating on computer bureau. The main advantages arise when there are requirements for very large file capacity and/or printed output, or when it is not possible to acquire in house requisite staff and skills. The main disadvantages are that there can be a lack of control, delays in input/output and inflexibility on high cost system amendments.

The options regarding type of bureau have expanded in the past few years. The major option is between batch processing (as at present on COPS) or on-line processing, where the user has access through screens and telephone lines to the main files of their own system. The on-line option is closest to having in-house equipment without incurring capital outlay and usually without the requirement to employ specialist staff. The annual costs can be high, depending upon the volume of data put through, and the restrictions on amendment and for development must be taken into consideration.

Considering the number of applications in the long term plans for St James's Hospital the bureau option, whether batch or on-line would not be the best. We are of the opinion therefore that St James's Hospital will require to have its own in-house computer at an early stage of system development and implementation. The in-house computer could have a link into a larger mainframe to facilitate storage of large files, etc.

8.4. CDPS, FDVH Options

As St James's Hospital already have some computerised systems and have been using the facilities of CDPS and the Federated Dublin Voluntary Hospitals, it is important that the continued use of these facilities be carefully considered.

Like any of the other considerations discussed in this section the usage of CDPS or FDVH facilities cannot be considered in isolation. The CDPS option would continue the bureau processing of data with the user site entering the data and printing the reports. The FDVH option is wider, in that the ICL 2904 could continue to be used as an input/output device to CDPS, or could be used as a stand-alone computer without communication with CDPS, but with direct on-line input from St.James's.
The CDPS option, though bureau oriented, could be widened due to the fact that most computers can now communicate with IBM, (which CDPS have) and also that there are many packages available to run on IBM equipment. Nevertheless we feel that the ultimate requirements of St James's Hospital could not all be met in this option.

However, to obviate the need for large storage requirements and fast printers, the CDPS link could still be very useful. In the early part of new systems implementation, the continued running of payroll on CDPS has many advantages.

Taking the FDVH option the range of useful software especially in the financial areas is not very extensive on the ICL equipment, and may reduce the attraction of the option in the long term. However, there are developments being carried out presently in the FDVH systems which will increase the level of flexibility and provide easier posting of the nominal ledger. They will not extend the system to cater for the complete management information as outlined in our recommendations.

We therefore conclude that the sole use of facilities offered by CDPS and/or FDVH will not be adequate to provide St. James's with the processing power required to run the proposed systems.

8.5. Short and Long Term Options

In the assignment we have been made very aware of the current shortcoming within the existing systems and have proposed solutions to overcome the problems. However, investigating the total systems requirements in St James's Hospital we have not confined the study to selecting software to meet only the short term requirements. While we would insist that systems be implemented on a phased basis, we have considered the options which will cover both short and long term developments.

In software, the implications of this approach are that systems must be studied which can meet all the requirements, although at the same time being constructed in modular form to allow single sub-applications to be installed alone. Specific to St James's Hospital is the requirement that non-financial systems can, when installed later, be compatible with the financial systems to provide integrated management reports. The hardware implications are mainly centred around the need to allow the configuration to grow when extra systems are installed, rather than have a machine replacement problem. This requirement must be considered even if specific areas have their own micro-computers, because the data output must
still be compatible with the main computer.

Therefore, we have looked at the type of hardware on which each of the packages analysed is capable of running in order to eliminate any which would be unsuitable for St James's Hospital.

We have stated earlier that our view of computer requirements in St James's Hospital is one of multi-user visual display screens communicating with a central processor. Systems would be integrated, with management information reports taking data from a number of sub-systems. It is likely that a mini computer will be the most appropriate for supporting the financial accounting and management information systems proposed for St. James's.

8.6. Ireland, U.K., Europe, and the United States of America

In assessing software available we have contacted health care institutions in Ireland and abroad with a view to discovering the state of the art in each location. Whereas in each country the computerisation of financial and non-financial systems for hospitals, health boards and Government Health Departments began with large batch systems, developments have taken place towards more sophisticated integrated systems.

8.6.1. Ireland

The most common health financial systems in operation in Ireland are those running on the Central Data Processing Service at Kilmainham with data input and report output being transmitted via telephone to each local user. These systems consist of payroll, general payments and bank reconciliation systems. They are quite old and include many facilities (e.g. budgeting) which have fallen into disuse. The systems have not been enhanced over the years and development requests by users have not been implemented due to CDPS staffing difficulties. Due to lack of confidence in the systems and because of coding errors, the user hospitals and health boards have become apathetic regarding system enhancements. The most obvious example of the system inadequacy is in the area of stock control and accounting which is virtually non-existent.
There have been some developments in the financial systems area, for example, the North Western Health Board (costing), the Adelaide and Meath Hospitals (stock) and St Vincent's (Patient Administration). Developments have tended to be sporadic and not co-ordinated. Standardisation and co-operation in system development has been virtually non-existent. As regards, any developments which have related to St James's Hospital, the only example is the current general payments and payroll systems revision being carried out by the FDVH. As a short term improvement this development is relevant, although it falls short of our ultimate recommended system. To achieve the long term objectives, the FDVH systems would have to be changed substantially or replaced.

8.6.2. United Kingdom

We have been aware that the general payments and payroll systems running in Ireland are based upon systems developed in the U.K. It was necessary to ascertain whether systems in England, Scotland and Wales have developed significantly in recent years, with a view to assessing their relevance to Irish hospitals and health boards. We therefore decided to hold discussions with:

- The Department of Health and Social Security
- The Scottish Department of Health

D.H.S.S.

The Department Computer Branch are finding it increasingly difficult to co-ordinate and control the acquisition of computer hardware and development of software by the various areas since below the regional level they have almost complete autonomy.

In 1971 a ministerial order specified that all health authorities should standardise equipment in the ICL 1900 range under the operating system George III. No standardisation of application software was stipulated. In 1975 - 1977 specific regions were nominated to pilot individual systems. For example, the West Midlands Region was to develop a financial accounting system and Manchester was to develop a payroll system. There are now eight regions running the standard payroll system. (In some cases, certain areas within the regions deviate from or add to the standard systems).
All the systems are batch processing, usually using the region computer as a bureau in the same way that the Mater or FDVH use CDPS. Some regions are using an IBM modelling facility and some are intending to invest in larger equipment.

Specific enhancements which have been requested by many regions include:

- On-line file inquiry
- ad hoc reporting
- better budget reporting and updating

There is no pilot scheme for stock control/stores accounting, although pharmacy stock usage is currently being developed at Stoke-on-Trent. The West Midland Region is currently developing on-line financial systems, which are due to begin live running in April 1981.

Regarding non-financial systems, standardisation does not exist because local policies can vary from one region to another. Patient administration and master index systems have tended to be run on completely separate computers. Integration of accounting and patient administration has been attempted at the London Hospital. In Wales a patient administration system has been installed at eight hospitals in one region.

In summarising our finding from visiting the Department of Health and Social Security we were surprised to see how little development had taken place in terms of integration and management information. The use of on-line systems is surprisingly low, and stock control and accounting have not been well developed on computer. In fact there is very little that St James's Hospital can learn from the D.H.S.S. Perhaps when the West Midland Region system is operational the financial requirements of St James's could be met on ICL equipment, but stores accounting and integration with patient statistics would still be missing.

One example of an area health authority which has enhanced the reporting available from the standard financial accounting system is Essex in the North East Thames Region. They have contracted with Cambridge Computer Services to develop the budget reporting aspect of the financial accounts. This is reviewed in detail in Section 8.7.
Scottish Department of Health

Similar to the D.H.S.S. in England, the Scottish Department of Health has an advisory role, although it must approve all capital expenditure for computers in excess of £10,000.

In general the computer advisory branch of the Department keep abreast of developments in financial and non-financial systems and attempt to co-ordinate systems throughout Scotland.

In one area, Inverclyde, the installation of computerised administration system has allowed a new hospital with 350 beds to replace a 450 bed hospital without loss of control or services. We examined the systems in operation at the Lothian and Tayside Area Health Authorities. These are included in the software review in section 8.7.

General

The procedure for licensing systems differs from England to Scotland. In England, all software comes under crown copyright and must be negotiated centrally through the D.H.S.S. Software has been transferred before and there appears to be no major problem.

In Scotland, software is not crown copyright and it is for each area to negotiate its own terms for licensing. The sale of software would incur a one-off charge, whereas if support or access to enhancements were desired, a recurring charge would also accrue.

8.6.3. Europe

We have made some investigations, through the main hardware manufacturers, into what software is available in Europe which might be suitable for St James's Hospital. In general we have found that language differences in software and documentation may be an added complication and as such should be avoided.

8.6.4. Canada and the United States of America

We have investigated the state of the art and the way in which developments are taking place in the United States and Canada, and their relevance to the Irish situation.
In the U.S.A. and Canada, the majority of hospitals over 250 beds have had their financial systems computerised for some years, and are now moving into second generation systems and hardware, and broadening their systems to include patient administration and medical systems. The move is away from in-house or group main-frame batch systems to shared or bureau systems supported by in-house, real-time dedicated minicomputers. The reasons for this manner of developing are:

- the requirement by hospitals to have on-line access to information
- the move towards integrated data base systems requiring large file storage capacity
- the need for ongoing sophisticated software development
- the difficulty in acquiring hospital-based data processing staff.

Hospitals in the over 500 bed range, with integrated systems, are spending approximately 2% of their annual operating budget on data processing - including staff, services and development.

Companies supplying hospital financial and management information systems include:

- hardware manufacturers (40% of the market)
- time shared on shared systems (30%)
- in-house and turn-key systems (20%)
- systems (20%)
- total system suppliers (5%)

Hardware Manufacturers such as IBM, Burroughs, Honeywell and N.C.R. have divisions that offer turnkey systems but their primary goal remains selling hardware rather than systems.

Time-Shared or Shared Systems have a substantial part of the market. These systems allow many different users with multiprocessing to simultaneously tie into the same computer, with each appearing to be the sole user. This type of supplier is noticeably increasing its percentage of the market, since they provide proven systems which require no capital investment and usually have no long term commitment, and users are relieved of the expense and management of a data processing facility. The drawbacks are, no choice in systems, inability to modify systems to user needs, and loss of direct control of data.
Independent Turnkey Systems provide a complete system including, equipment, programs, documentation service and manuals. The disadvantage of this type of system is its inflexibility to grow with the hospitals' requirements thereby necessitating a total replacement at each growth period.

Independent In-house System Suppliers are similar to turnkey suppliers since they provide both hardware and software to the hospital, however, the systems are custom designed. Spectra Medical Systems are an example of these suppliers. They are typically more costly than turnkey systems.

Total System Suppliers provide the hospital with total systems and include ongoing implementation and development. The primary drawback is the high cost. Suppliers include, Technicon, Burroughs and Datacare.

The main sector active outside North America is the hardware manufacturers, although recently some of the Shared and Turnkey Systems have been marketing in Europe, including Shared Medical Services in the United Kingdom.

Relevance to Ireland

The review of the hardware manufacturers revealed that several of the more prominent firms active in the field have a presence in Ireland. These include, mainly, IBM, Hewlett Packard, Honeywell, and Digital Equipment Corporation. None of the companies are presently marketing their "hospital software" to any great extent.

The other types of suppliers are minimally involved with marketing outside North America, however, some of their software, especially that developed for the Canadian market is applicable to Ireland.

In general, the software available in North America should be considered for St James's since, in many ways it is more advanced and easier to manage than the software available from the United Kingdom.

8.7. Software Review

Our software review included the detailed examination of hospital financial and patient administration software packages, and systems marketed by 18 companies, and 2 health authorities. A list of the companies is shown overleaf, for your reference. We have commented on the nine systems which we considered most relevant at St James's Hospital.
## REVIEW OF SOFTWARE PACKAGES

| Area Health Authority | British Medical Data Systems | * |
| Lothian       *   | Burroughs Corporation        | * |
| Tayside *       | Cambridge Computer Services Ltd. | * |
|                | Digital Equipment Corporation |    |
|                | Electronic Data Systems      |    |
|                | Health Computing (Ireland) Ltd. | * |
|                | Hewlett-Packard/System House | * |
|                | Honeywell Information Systems Inc. | * |
|                | Hospital Computing Services of Ontario Inc. |    |
|                | International Business Machines | * |
|                | International Computers Ltd (ICL) |    |
|                | MAI Canada Ltd.               |    |
|                | Medicus Systems Corporation  |    |
|                | McDonnel Douglas Automation Company |    |
|                | National Cash Register Corporation |    |
|                | Sperry Univac                 |    |
|                | Technicon Medical Information System Corporation |    |

* Denotes detailed review in Section 8.7.
NAME: LOTHIAN HEALTH AUTHORITY
NO. OF INSTALLATIONS: 7 Health Boards
DESCRIPTION: The Lothian Health Authority was chosen to pilot the standard financial accounting system for Scotland in 1976/77. The financial systems are entirely batch oriented. The system for financial reporting is based upon a similar coding structure to Tayside, and is geared toward actual "versus" budget reporting. It includes a capital expenditure module for forecasting and monitoring capital expenditure.
SOFTWARE: Accounting and Finance
HARDWARE: ICL
ASSESSMENT-GENERAL: The Lothian Health Authority have not been very successful in achieving the reporting objectives of the system. Only two out of forty five hospitals in the Area actually use the computer for management reporting, the remainder use the data to complete manual forms and reports.
ASSESSMENT- ST. JAMES: We can see no advantage for St James's to incorporate the Lothian systems.
NAME: TAYSIDE AREA HEALTH AUTHORITY

NO OF INSTALLATIONS: Tayside and used in the other Scottish Health Authorities

DESCRIPTION: The Tayside Area Health Authority has developed some of the most advanced systems in the United Kingdom Health Service. In particular they have developed on-line systems for financial accounting and reporting and for patient master index. As yet, Tayside have not integrated a stock control/usage system. Such a system is being piloted by the Grampian Health Authority in Aberdeen, and if appropriate, will be incorporated into the Tayside systems.

SOFTWARE:
- Accounting and Finance: financial ledger and budget reporting, payroll and staff statistics.
- Patient Index System: A system for recording area wide patient particulars. Used as basis for patient administration system in Ninewells Hospital

HARDWARE: The systems run on an ICL 1903T in Dundee, with user districts linked by terminal for data entry, screen enquiry, and report printing.

ASSESSMENT-GENERAL: The Tayside systems are more advanced than anything in the U.K. except perhaps the West Midland Regional Health Board. The coding system has been developed along the lines of the standard health authority systems and is quite close to that in the new FDVH system. The Patient Index System is purely a recording of patient particulars and would have to be added to, to accommodate patient administration. In general, Tayside has made an impressive effort to develop functional systems and to allow more user involvement through screen and printed reporting of data in user defined formats.

ASSESSMENT-ST.JAMES'S: The systems are worth considering, especially if the St James's Hospital systems are to run on ICL equipment. Development support is available through the Tayside Health Authority.
NAME: BRITISH MEDICAL DATA SYSTEMS  
(SHARED MEDICAL SYSTEMS INC. IN THE USA)

NO OF INSTALLATIONS:
U.K. = 1 (1979)
U.S.A. = 900 + (1969)
Holland = 1 (1979)

DESCRIPTION:
S.M.S. provide computer and management related services to hospitals in the U.S.A. S.M.S. markets (in the U.S.A.) a shared services approach of distributed data processing. Where a large-scale central host computer (IBM 370/168) communicates to an on-site mini-computer and intelligent computer terminals in the hospital.

B.O.C. Data solve and SMS Inc. have recently formed the joint firm of British Medical Data Systems to market hospital financial and patient management systems in the U.K. and Europe.

SOFTWARE:
- Accounting and Financial Management system:
  - General Ledger, Purchase Ledger, Payroll, Patient invoicing (costing)
- Resource Management System:
  - Personnel, Fixed Asset Accounting, Inventory, Financial Patient Index
- Patient Data Base (Command): patient statistics and analysis, admission activity monitoring, medical records support such as discharge letters, and diagnosis cross indices preparation of listings to support primary and preventive care activities.
- Patient Care Management (Action)
  - Master patient index, inpatient admission/discharge/transfer, waiting lists, and patient registration and scheduling, pharmacy, radiology, order/entry/report, laboratory system.

HARDWARE:
IBM 370 as host computer, with mini computers located in hospital (either IBM, DEC or Data point)

ASSESSMENT-GENERAL:
A good, well proven integrated hospital financial and patient management system. Requires minimal in-house computer staff if software support staff available from the company. Total system cost is fairly expensive, although the British Company are tailoring the cost (and system) to fit the British, and European market. The system is easy to use (for non D.P. people) and includes security systems to control access to the system.

ASSESSMENT-ST. JAMES
The systems would be applicable for St James's hospital. Since the C.D.P.S. operates IBM 370 hardware, some link-in is feasible. The total hospital concept available through one supplier would allow St James's to develop easily within the Proposed Framework. There is no Irish company marketing the system, so it would probably be supported from the U.K. firm, British Medical Data Systems.
NAME: BURROUGHS CORPORATION
NO. OF INSTALLATIONS: U.S.A. = 200+
DESCRIPTION: Burroughs Corp is a leading USA hardware supplier who is active in supplying management information systems to hospitals, and other health care institutions. There are several modules available which cater for financial management, data base management, and patient administration. Systems can run either on in-house equipment or on a bureau.

SOFTWARE:
- Accounting and Financial Management: Accounts receivable, accounts payable, administration management, payroll, personnel, general ledger (BHAS 11 a batch oriented disk system written in COBOL)
- Patient Administration: Medical records index, statistics, admission/transfer discharge, pharmacy, laboratory, radiology, patient care plans, scheduling (BHIPS-on-line real time system written in COBOL, FORTRAN IV and RPG)
- Data Collection and Communication: Nursing station order entry, scheduling, data base management (BHIPS on-line, real time processing and off-line batch processing. Written in FORTRAN IV and RPG)

HARDWARE: Systems operate on Burroughs 2900 and 3700 series computers and as well, a large hospital or groups of users could use the series B6000 or 7000 for all applications.

ASSESSMENT-GENERAL: The system in general and the three modules above, are being used in many hospitals in the U.S.A. The system is competitively priced and can be purchased in modular form. It places emphasis on the data base management system.

ASSESSMENT -ST. JAMES'S The Burroughs system provides all the applications that are within the proposed framework. Since it is in modules the system could grow with St James's needs. The hardware and software support for the system is an issue which must be considered. There are no installations in the U.K. or Ireland and this we consider a disadvantage.
NAME: CAMBRIDGE COMPUTER SERVICES LTD
NO OF INSTALLATIONS: Essex Health Authority, U.K. (1978)
DESCRIPTION: Cambridge Computer Services Ltd., operate a computer bureau in Bishop's Stortford and Cambridge. The bureau system takes the Regional Health Authority output on magnetic tape and processes the expenditure against budget files held on the bureau machine. The system operates in batch mode, using similar techniques to those in use at the F.D.V.H. and C.D.P.S. installations.
SOFTWARE: Financial: Budgetary control, departmental costing, allows for budget amendments, entry of accruals, journal and description charges. The software is written in COBOL for ICL equipment.
HARDWARE: The system is run on ICL 2904 equipment at Cambridge Computer Services Ltd. in Bishop's Stortford.
ASSESSMENT-GENERAL: Essentially, Cambridge Computer Services Ltd. offers a budget comparison against Regional Health Authority actuals, which means that both coding structures must be comparable in every way. The software has not been sold yet. The suggested cost is £12,000 which could rise to £20,000 depending upon the modification, training and implementation assistance which might be required. All support would be supplied from Cambridge Computer Services Ltd in the U.K.
ASSESSMENT-ST JAMES'S: The Cambridge system falls a long way short of the requirement of the Proposed Framework. The only advantage of the system over existing systems is the flexible accounting for budgets and report generation. If a decision were made by St James's Hospital to continue processing on the F.D.V.H. computer this system would be a useful add-on although there would have to be a much improved coding discipline to achieve all the benefits. This system would have to be examined against the proposed redesigned FDVH system if St James's took this option.
NAME: HEALTH COMPUTING (IRELAND) LIMITED

NO OF INSTALLATIONS:
IRELAND = 3 (Patient Administration 1979)
U.K. = 1 (Patient Administration 1978)

DESCRIPTION:
HCL is a recently formed Irish company, a wholly owned subsidiary of H.C.L. of the U.K. H.C.L(I) provide computer services in the health care area, using the turnkey approach of providing a full range of computer services, including: software package, tailoring, selection of hardware, training of staff, ongoing support, hardware maintenance. HCL, have a staff of approximately 25, 12 of whom are employed in Ireland.

SOFTWARE:
Financial: Budgetary control, Creditors, Expense claims, Patient monies, Payroll.
Laboratory: Chemical Pathology, Haematology, Microbiology, Histopathology, and a satellite processing system (operating in 11 clinical laboratories).
Patient Administration: Master patient index, inpatient module, outpatient module, waiting lists. All HCL software is written in MUMPS.

HARDWARE:
HCL software operates on DEC mini-computer hardware. The capability exists to link the DEC systems to a central ICL machine.

ASSESSMENT-GENERAL:
The patient administration and laboratory systems are both well proven systems. The financial systems are not as well known, and are less flexible than others, since they are written in MUMPS. The company provides good on-site support through its Irish base. The packages are reasonably priced and designed for the U.K. and Irish hospital market. The specialisation in hospital computing may be beneficial in relation to the patient and medical oriented system.

ASSESSMENT-ST JAMES'S:
The patient administration and laboratory systems are worthwhile considering for St. James's. The experience gained by H.C.L. implementing the patient administration system for the Adelaide, Meath, and National Children's Hospitals (all part of the FDVH) would be an advantage to St James's.
NAME: HEWLETT PACKARD/SYSTEMHOUSE LTD.

NO OF INSTALLATIONS: Canada = 40 (1978)
U.S.A. = 25 (1979)

DESCRIPTION
Hewlett Packard is one of the foremost companies in Medical Computing systems. To round out their hospital systems they have developed (with Systemhouse Ltd) a hospital Financial Management System. The HFMS is now installed and operating in Canada and the USA, and several pilots are proposed for Europe. It is an on-line interactive computer system which makes extensive use of display terminals located throughout the hospital for purposes of capturing data, making inquiries and initiating reports.

SOFTWARE:
Accounting and financial management: Payroll personnel, general ledger, budgeting, management reporting, inventory, purchasing, accounts payable, accounts receivable.

HARDWARE:
The system operates on the Hewlett Packard series 3000 minicomputer.

ASSESSMENT - GENERAL:
The system is well designed and flexible, it is easy for non D.P. staff to operate and requires relatively little D.P. backup. It has good built-in security procedures and audit trails. The cost of software and hardware is in the high range. The system does not have a proven record in Europe and there is no software support capability for the system in Ireland.

ASSESSMENT- ST JAMES'S
Although the system has been designed for the hospital environment and does include all the financial requirements it is not well developed in Europe, and this must be considered disadvantageous for St. James's.
NAME: HONEYWELL INFORMATION SYSTEMS INC.
NO OF INSTALLATIONS: U.S.A. = 150' +
DESCRIPTION: Honeywell has applied its extensive experience in financial management systems to produce hospital based financial and administrative systems. Systems can operate as stand-alone or shared systems depending upon the hospital size and framework of the system. System includes local and remote job entry, transaction processing, message switching, time sharing and interactive remote job entry into common data base management system. The system is based on independent but interrelated system modules.
SOFTWARE:  
- Accounting and Financial Management: general ledger, accounts payable, billing, reports budgeting, payroll, personnel, inventory, cost allocation.
- Patient Administration: medical records, master patient index, administration/transfer/discharge. System called HCSS/66
HARDWARE: The system operates on the Honeywell Series 60 and is capable of linking to the IBM system /3 software.
ASSESSMENT-GENERAL: The Honeywell system HCSS/66 is a comprehensive hospital based financial system. There are limitations to the patient administration system, and since Honeywell does not provide a total hospital system this may restrict developments in specific areas. The system is medium priced and easy to operate.
ASSESSMENT-ST JAMES'S: The availability of hardware and software support in Ireland for the system must be considered. There are a few installations in the U.K. however, the types of systems running on these and the backup provided by Honeywell would have to be examined.
INTERNATIONAL BUSINESS MACHINES (IBM)

Europe =
U.S.A. and Canada = 1500+

I.B.M. are the largest in hospital financial management and patient administration systems in the U.S.A. and Canada. They also have a substantial number of installations in Europe, and have recently been installing hospitals systems in the U.K. There is only one hospital installation in Ireland. However, CDPS operates batch hospital financial systems on IBM series 370 machines.

There are several levels of systems including:
- An integrated fully comprehensive (financial and patient administration) medical information system, called Health Care System, based on a data base concept, with on-line realtime capability.
- A mini computer system which has a full range of software (financial and patient administration available)

The larger Health Care System operates on the IBM 4300 series and IBM 370. The system operates both with the hardware in-house and as a bureau.

The small system operates on the IBM 34 and 38, as an in-house installation, and can link in with the larger IBM machines.

The IBM systems, are both fully comprehensive and very flexible. If the smaller hardware is used in-house the computer staffing will be minimal. The cost is medium range both for software and hardware. Hardware support is available either from IBM Ireland or the U.K. The system links in with CDPS and could also be run on a bureau.

The IBM systems represent a definite possibility to be considered for St James's.
This section describes in some detail an outline guide to the implementation of the proposed computerised systems for St James's Hospital. The plan should serve as a checklist for the Steering Committee of the various tasks requiring to be completed and should be continuously updated to cater for changes in priority or in personnel.

There are points in the plan where decisions have to be made regarding subsequent steps and which may involve priorities being changed or a redeployment of resources being required. We are assuming that the Steering Committee will be responsible for obtaining the required approvals. If there are any changes or delays the plan can be adjusted accordingly.

The main priority is that a defined plan be used to monitor progress on the implementation and that responsibility for each step in the plan be recognised and allocated. Whereas each step in the plan is a distinct entity, they all inter-relate and depend upon other steps being taken. The implementation plan is shown in Appendix 5 and each step is discussed below.

9.1. Agreement of Proposed Framework

The major priorities of the assignment has been to recommend the type of financial accounting and management information systems which would best suit St James's Hospital.

To date in our draft discussion documents and interim reports we have put forward our proposed framework and it has been agreed in principle by the Steering Committee. It is important as the first step to implementation that the concept of our proposed framework be agreed and accepted by the Board of St James's Hospital and the Department of Health.

Acceptance of the proposed framework will ensure that financial systems will be developed to integrate with the production of accounts and also with activity statistics from the medical departments. Acceptance of the recommendations will mean that responsibility accounting and cost centre reporting become part of the regular management system of St James's Hospital.

9.2. Set up Project Control Steering Group

Once agreement has been given to the proposed systems framework, a Steering Group should immediately be set up to control and monitor the implementation. The responsibilities and tasks of this group will differ from those of the current Steering Committee.
Among their tasks would be:

- Priority setting
- Timescales agreement
- Systems design agreement
- Hardware agreement
- Implementation progress monitoring

In addition to setting up a Steering Group, it is important that there be one contact person within the administrative group, to whom all arrangements, and appointments can be communicated. We would also suggest that this same person be given a co-ordinating function for the data processing project as his/her full-time position. The qualifications required for this person should be discussed and agreed between the steering committee and the consultants, prior to the commencement of implementation.

We think it important, that the Hospital Board make use of management consultancy expertise in the systems implementation.

9.3. Priority Setting for Implementation

In our proposals we have discussed a number of systems to be implemented at St James's Hospital. It will be necessary for the Steering Group to agree the priority of each system in a phased implementation. Our proposed priority is:

Financial Systems

- Creditors
- Payroll
- Nominal Ledger
- Financial Accounts

Management Accounting

- Cost centre accounting
- Responsibility accounting reports
- Integration with financial accounts

Pharmacy Stock System

- Master drug index
- Inventory control
- Usage analyses
- Cost centre reporting
Stores
- General Stores Stock Control
- Central Sterile Supply (as for Pharmacy)

Patient Administration Systems
- Master patient index
- Inpatient admission/discharge/transfer
- Waiting list production
- Statistical production and analysis
- Appointment scheduling
- Transport scheduling

As was explained at the outset, priorities may change from time to time depending upon decisions made at each decision point. Availability of software, hardware and staffing could have an impact on priorities. The requirements of specific areas, their relationship with the overall management information system and their operational needs could also involve priority changes.

Each setting and changing of implementation tasks sequence should be monitored closely by the Steering Group and should always be viewed in the context of the overall objectives.

9.4. Selection of Software

We have studied the availability of software suitable to the proposed systems framework. Relevant software packages have been examined, and the most appropriate of these are discussed in Section 8.

In this step, of the Implementation Plan, the Steering Group will select the systems that are regarded to be most appropriate for St James's Hospital. In selecting software the following points are among those which must be considered:

- all systems must be compatible, and capable of integration
- the appropriateness of the hardware on which the software operates
- number and calibre of data processing staff required to operate and maintain the systems

There will certainly be some program development requirement in addition to purchasing packaged software, and therefore, the following areas should be included in the selection process:
9.5. Implementation of Interim Proposals

As part of our assignment we have made recommendations regarding the improvement of existing financial reporting controls and procedures. We estimate that the recommendations, if implemented, would allow for financial reporting to be possible in the third week following the end of the month to which the report relates.

There will be a time lag before computerised systems are implemented therefore, it is essential that short term improvements be made. This requirement is emphasised by the fact that the FDVH computer will have improved systems available from January 1981 and in order for St James's Hospital to take advantage of these the clerical systems will have to be improved.

9.6. Selection of Hardware

While the management consultants' work to date has been involved with systems and the type of software available to operate those systems, a major task in implementation will be the selection of hardware facilities. We have stated elsewhere that the best long-term option for St James's Hospital is to acquire an in-house computer. Ultimately the software selection depends to a very large degree upon what decision is made regarding hardware.

Assuming that commitment is given to the idea that St James's Hospital has its own in-house computer, the following steps would have to be taken:

- ability of the package(s) to meet the requirements
- capability of the operating system (related to hardware) to support:
  - the workload
  - remote locations communications
  - file sizes, record volumes
- programming languages (important for software support and staff recruitment)
- capability of the packages to be modified once installed, and that pre-stated modifications can be carried out by the supplier
- availability of development aids for in-house programming
- adequacy of systems documentation including:
  - program listings
  - file descriptions
  - user manuals
  - procedure guides
9.6.1. Prepare a Statement of Total Requirements

This involves the preparation of a document containing details of input documents, volumes, processing cycles, flowcharts, file specifications, keying requirements and printing requirements.

9.6.2. Request Quotations from Suppliers

The statement of Total Requirements should be distributed to a selected list of hardware suppliers as a request for proposal. It should be made clear what information is required in all tender documents so that each can be evaluated on comparable criteria.

9.6.3. Evaluate Proposals Received

There are established criteria against which computer hardware configurations can be evaluated. These can be ranked in order of importance and weighted accordingly. Among the criteria are:

- ability to do the job, including technical data such as speed of transmission, storage space, memory size and printer speeds.
- ability of the hardware to grow on site through the addition of core memory, storage capacity addition of visual display screens etc.
- Engineering Support and maintenance
- Supplier reliability
- Established client base
- Software facilities offered
- Languages
- Ease of Use
- Training and education
- Cost
- Installation charges
- Delivery lead time

The selection of hardware for St James's Hospital depends very largely upon the role to be played by the CDPS and the FDVH computers. If the decision
is made to acquire in-house equipment, the terms should be negotiated and an order placed at this point.

9.7. Staffing/Training

The staffing implications of the new systems must be considered at an early stage. Non-data processing staff requirements have been discussed in Section 7. The number and level of data processing staff required will depend upon the hardware and software selected.

From the outset there should be a commitment to appointing a computer manager, whose role it would be to manage the installation and be responsible for:

- scheduling of work
- ensuring that deadlines are met
- supervision of data processing
- organising the development plans for additional software and programming requirements
- the security and file maintenance of the installation

Initially the computer manager would carry out the role of development and day to day operations control. Other staff required at an early date would be data entry operators. As the systems grow and further developments take place there would be a need for design, specification and programming for systems enhancement. St. James's would have the option of having the necessary expertise available in-house or contracting the work out. We estimate that the outset the staffing requirement of a data processing facility at St. James's Hospital would be:

![Diagram]

and if the option of having data processing expertise available in house were availed of, the following staff levels would eventually be required:

![Diagram]
We suggest that the liaison officer work closely with the D.P. staff. He/she should also have responsibility for liaison with medical and support personnel and for training and orientation of these staff to the new systems.

The objective of this step, in the Implementation Plan, is to draw up a comprehensive staff recruitment and training plan.

9.8. Detailed Systems Design

This task must be carried out for each system in the Implementation Plan. With packaged software there is very little systems design work, because the design and programming are complete. However, in matching the specific requirements of the user to the facilities offered in the package, some elements of design may be required.

The matching of user requirements with package facilities can best be done through attending demonstrations of the systems, carrying out pilot runs with user data and specifying any amendments or modifications required.

As part of systems design, the clerical routines and computer procedures should be examined, including the following:

- input specifications
- file and record formats
- processing and control procedures
- output reports
- document design
- security procedures
- coding structures
- file take-on procedures

It should be remembered that whereas the proposed systems requirements are likely to be met by packages, the user has this opportunity to have some customised tailoring carried out to meet his needs more fully.

9.9. Agreement of Design

The purpose of this step is to agree and sign off all design specification prior to programming commencing.

9.10. System Development

Any development, in the form of additional programs, system enhancements and modifications will go through the phases:
coding programs and /or amendments
- testing the programs
- documenting the programs

After the programmers have tested their programs, the users should ensure that the expected output has in fact been produced. At all times, controls should be very closely monitored, especially in an integrated system.

After each development stage user agreement is sought before proceeding to subsequent stages.

9.11. System Testing

In addition to program testing the user must prepare a test pack of data to process the full system for checking against manually prepared results.

It is not uncommon for there to be some minor modifications at this stage due to items having been overlooked or unforeseen. These modifications should be kept to the very minimum and avoided if at all possible.

9.12. Implementation

After each system has been selected, designed, modified and tested, live data can be input. However, prior to live data input the user must finalise a number of items to ensure that the systems are ready to go live. A number of the following points will have been carried out earlier and are included here as a checklist:

- finalise stationery design, order and receive
- prepare any special forms for file take-on
- re-organise any commonly used books to take new codes (e.g. creditors ledger, nominal ledger, cheque payments etc.)
- provide management and user staff with training and documentation
- prepare coding books as necessary
- prepare file conversion routines and controls
- prepare data for file take-on
- key enter file data
- print and check file data
- implement the system either on parallel running or on a pilot basis
- monitor the initial live run, check clerical controls.

There can be a significant amount of extra clerical work involved in taking on a new System, especially when parallel running is taking place. When the new system is operating
and has fully replaced the existing system, there will no longer be a requirement for extra clerical staff.

When implemented, the system should be reviewed by the user and the data processing staff to ensure that the objectives of the system are being achieved. If they are, attention can be turned to the next system to be implemented. The estimated time spent on system development in the implementation plan will be accurate as long as:

- packages are used
- management commitment and staff availability and support are forthcoming
- systems development is managed as a project, with adequate data processing expertise available

9.13. General

In addition to being responsible for the developing of new systems, the Project Control Steering Group will have other areas of responsibility. Among them are:

- Site preparation
- Staff recruitment
- Staff training and education

9.13.1. Site Preparation

A specific location would have to be prepared for installation of the main computer equipment. Normally there are no unusual environmental requirements for modern computers, but the hardware engineer should assess temperature fluctuation, power stability, air conditioning etc.

9.13.2. Staff Recruitment

Having assessed the type and number of staff requirement for the first phase, consideration should be given to remuneration rates, advertising, and interviewing to ensure that the required staff are available on time.

9.13.3. Staff Training and Education

Training will include courses given by the hardware supplier. The main training for existing accounts staff would be carried out "on the job", as the systems go live.
Managers and heads of departments who will be affected by the computer should be given a computer appreciation course. The computer manager should be given a course in computer management.

In addition to training and education, there is a requirement for technical expertise advice on each of the steps in the implementation plan. Also, there are some steps, such as hardware selection for example, where the responsibility should be given completely over to computer experts.

9.14. Role of Consultants

The tasks involved with the selection of a computer and the development of software require a large input of time and expertise. Each of the steps outlined in the proposed implementation plan should be thought out carefully with the relevant user departments, and decisions made in the full knowledge of their consequences. For this reason we feel certain that St James's Hospital should engage management consultants experienced in the various implementation steps.

Estimated consultancy time required is as follows

<p>| CONSULTANT SYSTEMS ANALYST PROGRAMMER |
|---------------------------------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>DAYS</th>
<th>DAYS</th>
<th>DAYS</th>
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</thead>
<tbody>
<tr>
<td>Agree Proposed framework</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Set up steering group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Priority sitting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Selection of software-financial</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Selection of software-non-financial</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Implementation of interim</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Selection of hardware</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Staffing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Detailed Systems Design (financial)</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Detailed Systems Design (non-financial)</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>Agreement of design</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>System development (financial)</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>System development (non-financial)</td>
<td>15</td>
<td>60</td>
</tr>
<tr>
<td>System testing (financial)</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>System testing (non-financial)</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Implementation (financial)</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Implementation (Non-Financial)</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>General, meetings etc</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>193</strong></td>
<td><strong>212</strong></td>
</tr>
</tbody>
</table>
At this stage it is impossible to know what the actual requirements will be as implementation takes place. Therefore, the most advantageous option for St James's would be to take each step as it arises and engage consultancy expertise as appropriate at the time. As in-house equipment, staff and expertise are added, the need for consultancy should be phased out.
APPENDIX I

CURRENT MANAGEMENT INFORMATION REPORTS
## CURRENT MANAGEMENT INFORMATION REPORTS

<table>
<thead>
<tr>
<th>DIRECTED TO</th>
<th>COMPILED FROM</th>
<th>COMPILED BY</th>
<th>CONTENT</th>
<th>FREQUENCY</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial</strong></td>
<td><strong>1. Budgetary Statement</strong></td>
<td>Dept of Health (Statutory Reporting)</td>
<td>Nominal Ledger Expense &amp; Labour Schedules</td>
<td>Accounting</td>
<td>(a) Actual Cumulative expenditure by pay &amp; non pay versus budget and cumulative income for the period and apportionment (b) Analysis of cumulative pay and non pay expenditure over various headings and corresponding apportionment figures.</td>
</tr>
<tr>
<td><strong>2. On Call Sanitaries</strong></td>
<td>Accounting</td>
<td>On call books</td>
<td>Personnel Dept/ Accounting</td>
<td>Number of calls and cost per month, plus cumulative for Biochemistry, Bacteriology, Haematology X-Ray central and X-Ray Accident and Emergency.</td>
<td>Monthly</td>
</tr>
<tr>
<td><strong>3. Labour Reports</strong></td>
<td>Accounting</td>
<td>Personnel/ Accounting</td>
<td>Accounting</td>
<td>2 Reports: Cumulative and current months gross wages and salaries by category of employee (103), monthly salaries and wages for groups of employees under various pay headings (102)</td>
<td>Monthly</td>
</tr>
<tr>
<td><strong>4. Expenditure Reports</strong></td>
<td>Accounting</td>
<td></td>
<td>Accounting</td>
<td>R-201 - general non pay expenditure detailed R-202 - general expenditure by groupings by month K 203 - current and cumulative expenditure by cost centre code R 209 - pay and non pay summary R 206 - outstanding creditors balances, by payee number K 207 - cheque listing</td>
<td>Monthly</td>
</tr>
<tr>
<td>CURRENT MANAGEMENT INFORMATION REPORTS</td>
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<td><strong>DIRECTED TO</strong></td>
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<td><strong>CONTENT</strong></td>
<td><strong>FREQUENCY</strong></td>
<td><strong>EVALUATION</strong></td>
</tr>
<tr>
<td><strong>Non Financial</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>1. Annual Report</strong></td>
<td>Dept of Health Hospital Board</td>
<td>Annual reports from Departments Expenditure and budgeting reports Statistics from medical records</td>
<td>Accounting/Hospital Administration</td>
<td>Hospital financial situation Developments Annual operating statistics</td>
<td>Annually</td>
</tr>
<tr>
<td><strong>2. Annual Reports Department</strong></td>
<td>Hospital, Nursing and Medical Administration Departmental statistics</td>
<td>Departmental needs</td>
<td>Departmental statistics, developments and requests</td>
<td>Annually</td>
<td>Used mainly by Departments as platform to air views and make requests. Statistics incorporated in Hospital Annual Report. No financial information included. Some departments do not submit.</td>
</tr>
<tr>
<td><strong>3. Bed Complement Status</strong></td>
<td>Medical and Medical support dept and Accounting Administrative Directive</td>
<td>Medical Records</td>
<td>Number of beds in each hospital and ward, by speciality and sex.</td>
<td>As required</td>
<td></td>
</tr>
<tr>
<td><strong>4. Activity Report Form M7</strong></td>
<td>Department of Health (Statutory Reporting) Departmental statistics and out patient clinic statistics</td>
<td>Medical records</td>
<td>Actual activity monthly and cumulative and proposed activity</td>
<td>Monthly</td>
<td>Report information not used by S.</td>
</tr>
<tr>
<td><strong>5. Analysis of Bed Days Form M.10</strong></td>
<td>Department of Health (Statutory Reporting)</td>
<td>Not able to complete</td>
<td></td>
<td></td>
<td>Cannot get the information in form required.</td>
</tr>
<tr>
<td><strong>6. Annual Return</strong></td>
<td>Hospital Administration, Matron, Medical Advisory Committee, F.D.V.H. Monthly reports in activity</td>
<td>Medical records</td>
<td>Bed occupancy rate, patient statistics</td>
<td>Annual</td>
<td>Used to prepare annual report. Not used for operating purposes, but used for planning.</td>
</tr>
</tbody>
</table>
## CURRENT MANAGEMENT INFORMATION REPORTS

<table>
<thead>
<tr>
<th>DIRECTED TO</th>
<th>COMPILED FROM</th>
<th>COMPILED BY</th>
<th>CONTENT</th>
<th>FREQUENCY</th>
<th>EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. <strong>Activity Analysis A.</strong></td>
<td>Hospital and Medical Administration.</td>
<td>Daily bed utilisation</td>
<td>Bed statistics by hospital and bed complements</td>
<td>Quarterly</td>
<td>Used for decision making and planning.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>statistics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. <strong>Activity Analysis B.</strong></td>
<td>Hospital Administration</td>
<td>Daily bed utilisation</td>
<td>Bed statistics by hospital by specialty</td>
<td>Quarterly</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>by specialty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. <strong>Outpatient Attendances A.</strong></td>
<td>Medical Administration and Matron</td>
<td>Clinic and accident</td>
<td>Activity analysis of clinics and waiting list</td>
<td>Monthly</td>
<td>Used by Medical Administration and Matron to plan for</td>
</tr>
<tr>
<td></td>
<td></td>
<td>and emergency records</td>
<td></td>
<td></td>
<td>clinics.</td>
</tr>
<tr>
<td>10. <strong>Outpatient Attendances B.</strong></td>
<td>Medical Administration and Hospital Administration</td>
<td>Clinic and accident and emergency records</td>
<td>Activity analysis for clinics including in-patients and staff area.</td>
<td>Monthly</td>
<td>Used by medical Administration and Matron to plan for clinics.</td>
</tr>
<tr>
<td>11. <strong>Outpatient Annual Return</strong></td>
<td>Hospital and Medical Administration</td>
<td>Monthly outpatients</td>
<td>Activity analysis of clinics aspects A and B</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Matron, F.D.V.H.</td>
<td>aspects A and B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. <strong>Operating Theatre Return</strong></td>
<td>Medical and Hospital Administration</td>
<td>Operating room statistics</td>
<td>Number of operations by room by consultant</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Matron</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 2

INTERIM PROPOSAL PROCEDURES
**PURCHASING PROCEDURES**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Purchase Order</td>
</tr>
<tr>
<td>2.</td>
<td>Delivery Note</td>
</tr>
<tr>
<td>3.</td>
<td>Goods Received Note</td>
</tr>
<tr>
<td>4.</td>
<td>Invoice</td>
</tr>
</tbody>
</table>
ST. JAMES'S HOSPITAL

ACCOUNTING AND CONTROL PROCEDURES

PROCEDURE : Purchase Order

PROCEDURE No.1

RESPONSIBLE NO. INSTRUCTIONS NOTES

Clerical Officer 1 Receive requests for materials and services

2 Raise a four part copy order as follows and enter:
- Date
- Name and address of supplier
- Material description
- Quantity
- Account code
- Unit price
- Signature of authorising officer

Prices must be quoted on all orders.

3 Send copy one (white) to the supplier

4 Send copy two (pink) to the Accounts dept. where it is placed in alphabetical order awaiting invoice

5 Send copy three (green) to stock control

The stock control copy will be necessary when a stock control system is in operation

6 Retain copy four in the order book
ST. JAMES'S HOSPITAL

ACCOUNTING AND CONTROL PROCEDURES

<table>
<thead>
<tr>
<th>RESPONSIBLE</th>
<th>NO.</th>
<th>INSTRUCTIONS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier</td>
<td>1</td>
<td>Supplier encloses a two part docket with each consignment</td>
<td></td>
</tr>
<tr>
<td>Receiving Officer</td>
<td>2</td>
<td>Checks that goods delivered are as per delivery not enclosed</td>
<td>When goods received are different from those stated on the delivery docket note difference on delivery docket to signing</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Sign delivery docket</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Return original copy to carrier and send copy to Accounts Department.</td>
<td></td>
</tr>
</tbody>
</table>
**ST. JAMES'S HOSPITAL**

**ACCOUNTING AND CONTROL PROCEDURES**

**PROCEDURE :** Goods Received Docket

**PROCEDURE No. 3**

<table>
<thead>
<tr>
<th>RESPONSIBLE</th>
<th>NO.</th>
<th>INSTRUCTIONS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving Officer</td>
<td>1</td>
<td>Prepare a three part copy - Goods received note for each consignment received stating -</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Name of supplier</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Date</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Particular of goods received</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Signature of person receiving the goods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>When a delivery docket is received (see procedure 2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Attach the delivery docket to copy one (white) and send to accounts office</td>
<td></td>
</tr>
<tr>
<td>Creditors Clerk</td>
<td>4</td>
<td>File copy one (white) in alphabetical order awaiting invoice from supplier</td>
<td></td>
</tr>
<tr>
<td>Receiving Officer</td>
<td>5</td>
<td>Copy two (pink) is forwarded to stock control</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Copy three (green) is retained in the G.R.N. book</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The preparation of a Goods Received Docket is not necessary when a Delivery Docket is signed and sent to the Accounts Department.
# ST. JAMES'S HOSPITAL

## ACCOUNTING AND CONTROL PROCEDURES

### PROCEDURE: Invoices (Supplier)  
**PROCEDURE No. 4**

<table>
<thead>
<tr>
<th>RESPONSIBLE</th>
<th>NO.</th>
<th>INSTRUCTIONS</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier</td>
<td>1</td>
<td>Receive invoice from supplier</td>
<td>All invoices must be addressed directly by suppliers to accounts dept.</td>
</tr>
<tr>
<td>Creditors</td>
<td>2</td>
<td>Invoices received from post room and examined briefly and date stamped</td>
<td></td>
</tr>
<tr>
<td>Clerk</td>
<td>3</td>
<td>Invoice details recorded in invoice register and filled alphabetically until required for processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Take invoices from file and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Stamp each invoice with an impressed rubber stamp</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check that order No is shown</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Take pink order copy from file</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Take white G.R.N. copy from file</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Compare information on invoice with order, to verify material description, quantities, prices and record order no. in appendix box on invoice box.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- G.R.N. to ensure that quantities and description of materials on the invoice agree with those on the G.R.N. and record G.R.N. no. on invoice</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If there are still items outstanding on the order retain it on file until the order is complete marking off the items which come in</td>
<td></td>
</tr>
</tbody>
</table>
- Check extensions on prices and quantities and initial in appropriate box on invoices.
- Code invoice to appropriate account.

6
- Staple invoice to appropriate GRN and order and prepare a UH2A form and pass to supervision for initialling.

7
- If information does not agree
- Contact the person responsible for ordering and on receiving the goods on service and obtain his or her signature on the invoice before passing on as in 6.
APPENDIX 3

COST CENTRES / ALLOCATIONS

The cost centres, sub cost centres and allocations which follow are examples only. One of the first steps to be taken in system design is for St. James's to define what codes and analyses they wish to have in this regard. The major criteria for defining cost centre codes is the number of budget responsibility managers involved.


<table>
<thead>
<tr>
<th>COST CENTRE</th>
<th>SUB COST CENTRES</th>
<th>LEVEL OF COST ALLOCATION</th>
<th>ACTIVITY MEASUREMENT UNITS</th>
<th>COST ALLOCATION UNITS</th>
<th>LOCATION IN ST. JAMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Medical Acute</td>
<td>1. Ward 1</td>
<td>Per ward or unit</td>
<td>Number of patients</td>
<td>£/Patient day</td>
<td>Hospital 1 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Ward 2</td>
<td></td>
<td>Days</td>
<td></td>
<td>Hospital 1 - Top</td>
</tr>
<tr>
<td></td>
<td>3. Ward 3</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 2 - Ground</td>
</tr>
<tr>
<td></td>
<td>4. Medical Intensive Care</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 2 - Top</td>
</tr>
<tr>
<td></td>
<td>5. Medical Haematology</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 1 - Middle</td>
</tr>
<tr>
<td></td>
<td>6. Medical Day Hospital</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 1 - Top</td>
</tr>
<tr>
<td></td>
<td>7. Ward 4</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 1 - Middle</td>
</tr>
<tr>
<td></td>
<td>8. Ward 5</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 5 - Top</td>
</tr>
<tr>
<td>2. Medical Long-Stay</td>
<td>1. Ward 1</td>
<td>Per Ward</td>
<td>Number of patients</td>
<td>£/Patient</td>
<td>Hospital 3 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Ward 2</td>
<td></td>
<td>Days</td>
<td></td>
<td>Hospital 3 - Top</td>
</tr>
<tr>
<td></td>
<td>3. Ward 3</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 3 - Middle</td>
</tr>
<tr>
<td></td>
<td>4. Ward 4</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 3 - Middle</td>
</tr>
<tr>
<td></td>
<td>5. Ward 5</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 3 - Top</td>
</tr>
<tr>
<td></td>
<td>6. Ward 6</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 3 - Top</td>
</tr>
<tr>
<td></td>
<td>7. Ward 7</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 3 - Top</td>
</tr>
<tr>
<td>3. Geriatric</td>
<td>1. Ward 1</td>
<td>Per Ward</td>
<td>Number of patients</td>
<td>£/Patient</td>
<td>Hospital 2 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Ward 2</td>
<td></td>
<td>Days</td>
<td></td>
<td>Hospital 2 - Top</td>
</tr>
<tr>
<td></td>
<td>3. Ward 3</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 4 - Middle</td>
</tr>
<tr>
<td></td>
<td>4. Ward 4</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 4 - Middle</td>
</tr>
<tr>
<td></td>
<td>5. Ward 5</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 4 - Top</td>
</tr>
<tr>
<td></td>
<td>6. Ward 6</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 4 - Top</td>
</tr>
<tr>
<td></td>
<td>7. Ward 7</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 4 - Top</td>
</tr>
<tr>
<td></td>
<td>8. Ward 8</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 4 - Top</td>
</tr>
<tr>
<td></td>
<td>9. Day Care</td>
<td></td>
<td>Number of patient visits</td>
<td>£/Patient</td>
<td>Day Care -</td>
</tr>
<tr>
<td>4. Surgical</td>
<td>1. Ward 1</td>
<td>Per ward or unit</td>
<td>Number of patients</td>
<td>£/Patient</td>
<td>Hospital 7 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Ward 2</td>
<td></td>
<td>Days</td>
<td></td>
<td>Hospital 7 - Middle</td>
</tr>
<tr>
<td></td>
<td>3. Ward 3</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 7 - Middle</td>
</tr>
<tr>
<td></td>
<td>4. Ward 4</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 7 - Top</td>
</tr>
<tr>
<td></td>
<td>5. Ward 5</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 7 - Top</td>
</tr>
<tr>
<td></td>
<td>6. Surgical Intensive Care</td>
<td></td>
<td></td>
<td></td>
<td>Hospital 7 - Top</td>
</tr>
<tr>
<td></td>
<td>7. O.R. Theatre and Recovery</td>
<td>Per unit</td>
<td># of operations/procedures</td>
<td>£/Operation</td>
<td>Hospital 7 - Top</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td># of hours of operation</td>
<td></td>
<td>Hospital 7 - Top</td>
</tr>
<tr>
<td>COST CENTRE</td>
<td>SUB COST CENTRES</td>
<td>LEVEL OF COST ALLOCATION</td>
<td>ACTIVITY MEASUREMENT UNITS</td>
<td>COST ALLOCATION UNITS</td>
<td>LOCATION IN ST. JAMES</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------</td>
<td>--------------------------</td>
<td>---------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>5. Maternity</td>
<td>1. Ward 1</td>
<td>Per Ward or per Unit</td>
<td>Number of patient Days</td>
<td>£/Patient Day</td>
<td>Hospital 5 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Ward 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Isolation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Infant Special Care</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Delivery Suite</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Psychiatry</td>
<td>1. Ward 1</td>
<td>Per Ward or per Unit</td>
<td>Number of Patient Days</td>
<td>£/Patient Day</td>
<td>Hospital 6 -</td>
</tr>
<tr>
<td></td>
<td>2. Ward 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Day Care</td>
<td></td>
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<td>Psych Day Care Unit</td>
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</table>
### 1. MEDICAL SERVICES

#### (B) OUTPATIENT UNITS

<table>
<thead>
<tr>
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<th>SUB COST CENTRE</th>
<th>LEVEL OF COST ALLOCATION</th>
<th>ACTIVITY MEASUREMENT UNITS</th>
<th>COST ALLOCATION UNITS</th>
<th>LOCATION IN ST JAMES'</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Accident &amp; Emergency</td>
<td></td>
<td>Per unit</td>
<td>Patient visits</td>
<td>£/ Patient visit</td>
<td>Hospital 7 - Ground</td>
</tr>
<tr>
<td>2. Medical Clinics</td>
<td>1. Oncology</td>
<td>Per Clinic</td>
<td>Patient visits</td>
<td>£/Patient visit</td>
<td>Hospital 7 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Respiratory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Dermatology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Cardiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Haematology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Ophthalmology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Neurology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Rheumatology</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>9. Chiropody</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10. Geriatric</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. G.U.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12. Gynaecology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13. General Medicine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14. Fertility</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Surgical Clinics</td>
<td>1. Anaesthetics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Surgical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Psychiatry Clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Maternity Clinics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## 2. Medical Support

<table>
<thead>
<tr>
<th>Cost Centre</th>
<th>Sub Cost Centre</th>
<th>Level of Cost Allocation</th>
<th>Activity Measurement Units</th>
<th>Cost Allocation Units</th>
<th>Location in St James</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Radiology</td>
<td>1. Diagnostic Radiology</td>
<td>Per Unit</td>
<td>Number of examinations per unit</td>
<td>£/per exam.</td>
<td>Hospital 7 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Nuclear Medicine</td>
<td></td>
<td></td>
<td></td>
<td>- + portable units in 3 areas</td>
</tr>
<tr>
<td></td>
<td>3. Ultra Sound</td>
<td></td>
<td></td>
<td></td>
<td>- Accident and Emergency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- 2 Mobile units</td>
</tr>
<tr>
<td>2. Pharmacy</td>
<td>1. Inpatient</td>
<td>Per Ward</td>
<td>Number of items/ ward</td>
<td>£/ward</td>
<td>Pharmacy building</td>
</tr>
<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per patient</td>
<td>Number of units/ patient</td>
<td>£/patient</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Clinics</td>
<td>Per clinic</td>
<td></td>
<td>£/item (Rx)</td>
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<td>3. Laboratory</td>
<td>1. Haematology</td>
<td>each sub</td>
<td>Number of tests performed</td>
<td>£/test</td>
<td>Pathology Building</td>
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<td></td>
<td>2. Biochemistry</td>
<td></td>
<td></td>
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<td></td>
<td>3. Histopathology</td>
<td>each sub</td>
<td>(one lab units)</td>
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<td></td>
<td>4. Microbiology</td>
<td>centre serviced</td>
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<td></td>
<td>5. Immunology</td>
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<td></td>
<td>6. Blood Bank</td>
<td>(Internal/External)</td>
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<tr>
<td>4. Physiotherapy</td>
<td>1. Inpatient</td>
<td>Per ward</td>
<td>Treatment units</td>
<td>£/treatment Unit</td>
<td>Hospital 3 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per patient</td>
<td>Number of patients</td>
<td>£/patient</td>
<td></td>
</tr>
<tr>
<td>5. Speech Therapy</td>
<td>1. Inpatient</td>
<td>Per ward</td>
<td>Number of sessions</td>
<td>£/session</td>
<td>From E.H.B.</td>
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<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per patient</td>
<td>Number of Patients</td>
<td>£/patient</td>
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</tr>
<tr>
<td>6. Social Services</td>
<td>1. Inpatient</td>
<td>Per ward</td>
<td>Number of interviews</td>
<td>£/interviews</td>
<td>Hospital 3 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per clinic</td>
<td></td>
<td></td>
<td>Geographic Units in Hospital 4.</td>
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<tr>
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<td>3. Extended external</td>
<td>Per day</td>
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### 2. MEDICAL SUPPORT

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<th>LEVEL OF COST ALLOCATION</th>
<th>ACTIVITY MEASUREMENT UNITS</th>
<th>COST ALLOCATION UNITS</th>
<th>LOCATION IN ST JAMES'</th>
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<tbody>
<tr>
<td>7. Occupational Therapy</td>
<td>1. Inpatient</td>
<td>Per ward</td>
<td>Number of sessions</td>
<td>£/session</td>
<td>Hospital 3 - Ground plus geriatric day care.</td>
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<td>2. Day Care</td>
<td>Per patient visits</td>
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<td></td>
<td>3. External</td>
<td>Per visit</td>
<td></td>
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</tr>
<tr>
<td>8. Stoma Care</td>
<td>1. Inpatient</td>
<td>Per ward</td>
<td>Number of treatments</td>
<td>£/Treatment</td>
<td>Hospital 7 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per patient</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>9. EKG</td>
<td>1. Inpatient</td>
<td>Per ward</td>
<td>Number of tests</td>
<td>£/Test</td>
<td>Hospital 7 - Ground</td>
</tr>
<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per patient</td>
<td></td>
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<tr>
<td>10. EEG</td>
<td>1. Inpatient</td>
<td>Per ward</td>
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<tr>
<td></td>
<td>2. Outpatient</td>
<td>Per patient</td>
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### 3. GENERAL ADMINISTRATIVE AND SUPPORTIVE SERVICES

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<th>LEVEL OF COST ALLOCATION</th>
<th>ACTIVITY MEASUREMENT UNITS</th>
<th>COST ALLOCATION UNITS</th>
<th>LOCATION IN ST. JAMES</th>
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<tbody>
<tr>
<td>1. Laundry</td>
<td>1. St James’</td>
<td>Per sub cost centre</td>
<td>Pounds of laundry (soiled)</td>
<td>£/lb</td>
<td>Laundry Building</td>
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<tr>
<td></td>
<td>2. Each Unit</td>
<td></td>
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<tr>
<td></td>
<td>3. Serviced</td>
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<td></td>
<td>4. Outside S.J.</td>
<td></td>
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<tr>
<td>2. Housekeeping</td>
<td>Each building = sub cost centre</td>
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<tr>
<td>3. Catering/Dietary</td>
<td>1. Inpatient Wards</td>
<td>Per sub cost centre</td>
<td>Number of meals served</td>
<td>£/Meal day</td>
<td>Catering Building</td>
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<tr>
<td></td>
<td>2. Staff Canteen</td>
<td></td>
<td></td>
<td>£/Meal</td>
<td></td>
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<tr>
<td>4. Engineering and Maintenance</td>
<td></td>
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<tr>
<td>5. Transport</td>
<td>1. Ambulances</td>
<td>Per sub cost centre</td>
<td>Number of miles</td>
<td>£/Mile</td>
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<td></td>
<td>2. Patient Transport</td>
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<td>Number of trips</td>
<td>£/Trip</td>
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<tr>
<td></td>
<td>3. Goods Transport</td>
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<td>6. Central Sterile Supply</td>
<td>Inpatient wards</td>
<td>Per sub cost centre</td>
<td>Number of items</td>
<td>£/wards</td>
<td>CSS Building</td>
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<td>2. Medical Depts</td>
<td></td>
<td></td>
<td>£/Depts</td>
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<tr>
<td>7. General Supplies</td>
<td>1. Inpatient Wards</td>
<td>Per sub cost centre</td>
<td>Number of items/ Cost Centre</td>
<td>£/Cost sub centre</td>
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<td>2. Medical Depts.</td>
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<td>3. Other Depts.</td>
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<td>8. Administration</td>
<td>1. Medical</td>
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<td></td>
<td>2. Nursing</td>
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<td>3. Hospital</td>
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<td>9. Medical Records</td>
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<tr>
<td>10. Admitting</td>
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<tr>
<td>COST CENTRE</td>
<td>SUB COST CENTRE</td>
<td>LEVEL OF COST ALLOCATION</td>
<td>ACTIVITY MEASUREMENT UNITS</td>
<td>COST ALLOCATION UNITS</td>
<td>LOCATION IN ST. JAMES'</td>
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<tr>
<td>11. Research Unit</td>
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<td>12. Education</td>
<td>1. Medical</td>
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<td>2. Nursing</td>
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<tr>
<td>13. Planning</td>
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<td>14. Data Processing</td>
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</table>
APPENDIX 4

POSITION GUIDES FOR
SENIOR FINANCE POSITIONS
POSITION GUIDE

FINANCIAL CONTROLLER

MAIN FUNCTION:
The Financial Controller is responsible for the management and control of all the financial and accounting functions of the hospital. He/She is responsible for the interpretation of accounting results, the appraisal of the hospital's financial position and the issue of periodic reports, including monthly financial and management reports to the Chief Executive Officer. The financial Controller is also responsible for the direction of the hospital's budget programmes, and costing activities, and generally for provision of financial advice to the Chief Executive Officer and the Board. In addition, the Financial Controller is responsible for the preparation of submissions for funding to outside agencies including the Department of Health. He/She is responsible for the administration and control of all monies in the form of grants and funds which are placed in trust with the hospital.

RESPONSIBLE TO:
The Chief Executive Officer.

DUTIES AND RESPONSIBILITIES:
Specific duties and responsibilities should be developed in conjunction with the Finance Committee and the Chief Executive Officer. These should include:

- specific responsibility for the maintenance of efficient accounting systems and for the coordination of new financial systems.

- ensure that the responsibilities of the Financial Accounting and Management Accounting sections are clearly defined.

- responsible for the recruitment policies and training activities required to provide the most appropriate staff for the finance department.

- be responsible for the accounting and monitoring of capital expenditure.
RELATIONSHIPS:
- Directly responsible to the Chief Executive Officer.
- Member of the Finance Committee.
- Member of the Senior Management Committee.
- Maintain close working relationships with senior management throughout the hospital.

EXPERIENCE REQUIRED FOR THE POSITION:
The Financial Controller should have:-

- A working knowledge and direct experience with modern accounting and financial principles, including, responsibility accounting, costing and financial management.

- Experiences in managing the finances of a large organisation with diverse activities.

- A working knowledge and experience with computerised Financial and Accounting systems.

- Had involvement at a senior level in a development programme including capital and system changes.

- Familiarity with a hospital environment would be beneficial but not a requirement.

- Familiarity with public administration and accounting systems would also be desirable.
POSITION GUIDE

FINANCIAL ACCOUNTANT

MAIN FUNCTION: The Financial Accountant is responsible for the day to day operation of the Financial Accounts Department, including responsibility for; the Nominal Ledger and production of the monthly Trial Balance; ensuring that statutory records are maintained in respect of Department of Health requirements, VAT, PAYE etc.; safeguarding the assets of the hospital in respect of plant, stocks, debtors and cash; implementation of internal check procedures by organising and supervising office activities.

RESPONSIBLE TO: The Financial Controller.

DUTIES AND RESPONSIBILITIES: Specific duties and responsibilities should be developed in conjunction with the Finance Committee, the Chief Executive Officer and the Financial Controller.

EXPERIENCE REQUIRED FOR THE POSITION:
The Financial Accountant should have:
- Had experience in a senior accounting position including areas of payroll, creditors, debtors, financial accounts etc.
- Familiarity with computerised accounting procedures.
POSITION GUIDE

MANAGEMENT ACCOUNTANT

MAIN FUNCTION: The Management Accountant is responsible for the day to day operation of the Management Accounting Department, including responsibility for budgeting, costing and management reports, and is responsible for the development of management accounting and systems and procedures.

RESPONSIBLE TO: The Financial Controller.

DUTIES AND RESPONSIBILITIES: Specific duties and responsibilities should be developed in conjunction with the Finance Committee, the Chief Executive Officer and the Financial Controller.

EXPERIENCE REQUIRED FOR THE POSITION:

The Management Accountant should have:

- Had experience in management accounting including familiarity with various management accounting techniques.
- Familiarity with computerised budgeting procedures.
APPENDIX 5

IMPLEMENTATION PLAN
IMPLEMENTATION PLAN

**Implementation Stages**

- **SYSTEM METHODOLOGY**
- **SELECT SOFTWARE**
- **IMPLEMENT INTERIM PROPOSALS**
- **SELECT HARDWARE**
- **RECRUIT STAFF**
- **SYSTEMS DEVELOPMENT**

**Months**

<table>
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<tr>
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<th>16</th>
<th>20</th>
<th>24</th>
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- *Nominal Ledger*
- *Financial Accounts*
- *Management Accounts*
- *Pharmacy Stock*
- *Pharmacy Master Index*
- *Stores*
- *Patient Administration*
- *Medical and General Support*
### SYSTEMS DEVELOPMENT DETAILED TIMING

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<th>Design and Agreement</th>
<th>Development and Testing</th>
<th>Implementation</th>
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