Studies in the function and design
of non-surgical hospital equipment

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Commentary based on observations of the equipment planning working party of the West Middlesex Hospital redevelopment.

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CONFIDENTIAL REPORT on:
Equipment decisions in planning
a new hospital building.

Prepared on behalf of the King Edward's Hospital Fund for London.

PART 1 PRECEEDING EVENTS

The investigating team was not involved in the overall planning of the new West Middlesex Hospital (redevelopment) and participated only in the intermediate sub-task of examining proposed equipment lists for the Medical and Paediatric Block. The following list of events is based upon information provided by the Architects.

0. Negotiations and agreements between the Ministry of Health, the North West Metropolitan Regional Hospital Board and the architects.

1. Outline schedules of accommodation prepared by Secretary of the South West Middlesex Hospital Management Committee in the capacity of project secretary.

2. Working group (at the regional hospital board) thereon known as the Project Committee, comprising permanent and changing officers of the regional hospital board, representatives of the hospital management committee and the architects. Responsible for overall redevelopment plan including main schedules of accommodation, detailed accommodation, services, departmental relationships etc.

3. Working Party (hospital) comprising hospital representatives and architects. Concerned with completion of room-user survey sheets prepared by the Board. Sheets submitted to Project Committee with plans for suggested room layouts and for consideration of variations in proposed room areas.

4. Sub-Working Party (Equipment).

PART 2 Observations based upon meetings of the WORKING PARTY (Equipment) (Medical and Paediatric block only)

Terms of reference

First series of meetings: To consider previously compiled lists of equipment and decide whether or not the items are required and whether any further items need to be added.

Second series of meetings: To make actual selection decisions.

This Report is based on the first series (19 meetings).

Composition of Working Party

Chairman: Secretary of South West Middlesex Hospital Management Committee (Project secretary).

Members: Medical represenative (a consultant surgeon) also representing Project Committee, matron, hospital secretary, supplies officer, architects, representative of the Hospital Equipment Group (Royal College of Art).

Regional hospital board representative attended first five meetings.

Co-opted members as and when necessary, viz., consultant physician, consultant paediatrician, clinical nursing instructor, a ward sister.

Procedure of meetings

The following check lists of equipment were made available at meetings: 1. List pre-prepared by hospital, 2 Regional hospital board list, 3. Ministry of Health list - one copy only at first six meetings and then individual copies for members.

Lists were considered item by item and the quantities agreed for the drawing-up of a complete list for final approval at the following meeting.

Observations of meetings

Quite apart from the stage in planning when equipment lists need be in their completed form, there must obviously be a step of verification and modification of the lists to arrive at a final agreed version. The primary motive of this step, however, emerged as one of establishing overall cost estimates, but as no specific selection decisions were made it is difficult to foresee how realistic and helpful such estimates might be.

On the other hand, in having to decide the type and number of items required it forced consideration of the 'systems' and activity situations in which the equipment would be involved. From the outset it was apparent that the systems had been decided only in principle or outline and that the activity situations were either vague concepts or conceived quite differently according to individual knowledge and experience.

It would seem,however,that it was intended that the detailing phase of the systems and activities should be left to the working party responsible for deciding on the equipment which would figure in them. The reason for this is apparent in regard to some of the proposed systems.For example, the existing hospital is in the process of developing a central sterile supply department and as yet only a few wards are supplied. Experiments are in progress with methods of packing, sizes of packs and quantities with a view to developing the most efficient and economical service for the new hospital. It is not known to what extent the hospital has drawn upon the experiences of others with a fully developed C.S.S.D.but it seems that sufficient data is now available to have eliminated the need for these experiments -especially in view of the architectural decisions which were at stake.

In the course of the nineteen meetings there were six instances of decisions being 'shelved'- all concerning details of systems or activities not yet decided, for example, the number of trolleys required in the clinical area of the medical block. Some of the proposed systems were outside the experience of the existing hospital,e.g. a fully mobile bed system, and therefore presented difficulties in formulating the exact requirements for briefing the architect, but the same cannot be said of the basic activities.

The 'Room User' sheets were presumably intended to provide the architect with such information,but it is now apparent that they are inadequate in detail and confusing in the absence of any prior knowledge of the internal workings of a hospital and patient-care activities.Hospital language tends to be used and confusion arises fundementally from the terminology.For example,a 'surgeon's sink' was requested for a room, thereby implying that it needed to have special features,yet under the activities of the room there was no mention of a surgeon or a surgical procedure.On questioning it was revealed that the requirement was simply hand-washing facilities for staff,as opposed to a sink used by patients.

The layout of mult-aotivity centres such as the Dirty Utility presented real problems of decision-making on equipment.These were solved by 'mock-ups' based on the existing architectural plan and acting-out the activities, but this resulted in radical changes in the plan and it was apparent that the architect's conception of the activities was inadequate and in some instances, totally false.

A notable feature of the meetings was the absence on the table of written information on the subject or items under discussion. Two reports were quoted (one incorrectly) and one referred to for verification of a specific point. The equipment lists for consideration were not circulated prior to the meeting so there was no opportunity for individual members of the working party to assemble thoughts and information. The effect of introducing collected information into the situation was demonstrated in respect to the proposal to have a ceiling-fixed hoist in a general purpose bathroom. As the representative of the Hospital Equipment Group was known to have special experience in bathing techniques,information was invited; this showed the proposed method to have limitations and complications hitherto not appreciated and resulted in its withdrawal in favour of an alternative method.

In respect to the above, it must be pointed out that no attempt was made to influence the working party by virtue of special personal experience. In this, and in similar instances, information was collected and presented for evaluation and judgement, the significant factor being that its compiler was unfettered by other responsibilities within the hospital and therefore in a position to pursue enquiries.

Another notable feature of the meetings was that the people involved in the running of the existing hospital and working under considerable practical difficulties could not readily project themselves into the future and imagine practising in an entirely new environment with additional and more efficient services. To mention only one minor example, an air-extractor device for an X-ray screening room was requested on the grounds that the atmosphere becomes stuffy and unpleasant;it had not been appreciated that this will not occur in the new hospital by virtue of its being fully air-conditioned.

There were a few instances of conflict of medical and nursing opinion, e.g. linen towels versus paper towels. The discussion revealed that objection to paper towels was based upon past personal experience with towels of poor drying qualities. Such conflicts of opinion were resolved by one party giving way or over-ruling, whereas the presentation of up-to-date data on the subject and/or practical trials where appropriate, would doubtless have permitted amicable and possibly more valid decisions based on factual evidence.

Throughout the meetings the earnest sincerity of all present conscientiously to discharge individual responsibility for making the new hospital efficient and an object of pride was very apparent. Equally apparent was the overriding difficulty of otherwise fully-occupied hospital personnel to conceive clearly details of the internal workings of the new hospital as distinct from the building,traditions and practice of the old. This,combined with a lack of detailed and collated information in the early stages, led to a developing brief for the architect, only arriving at a degree of adequacy long after the plan of the building had been agreed. Thus, the situation regarding the selection of equipment is now one of compromise in endeavouring to make the proposed, and hitherto ill-defined, systems and activities work as efficiently as possible in the circumstances.

PART 3 General considerations on hospital planning

It takes a great deal more information to build a hospital than to run one. Much of this information is locked within the experience of the chief officers of the hospital, a little of it lies within the architect's experience, much of it must be found elsewhere.

The assembling and compiling of this information into a body of knowledge and the translation of this knowledge into a reliable brief for the building team represents a great deal of work - as much work as running a hospital, which is itself a full time job.

All of the members of this and some other working parties which the Hospital Equipment Group of the Royal College of Art has seen, were people trying to do two full time jobs.

In such situations certain facets of the work suffer.

Preparation

The circulations, communications and processes of the hospital organism and their methods of use must be fully understood,rationalised and described in suitable language for the architect. This must be developed long before there is any discussion of "rooms" or "room schedules".This work, which must be done in considerable detail,will inevitably seem academic to busy, practical administrators, doctors and matrons.

While a great amount of this system analysis might be and sometimes is done at the Regional Hospital Board, much of it will devolve upon working parties based at the hospital, particularly for redevelopment projects. At the hospital there is no one at present with time to do it.

Research

Members of the planning team will do a certain amount of reading to get abreast of progress elsewhere, in addition they will actually visit other new or significant projects, But due primarily to lack of time no formal digest or report or recommendations will be laid on the table afterwards. The members concerned will bring the new information in only as part of personal experience.

Again, due to lack of time, detailed agendas cannot be prepared, or if prepared cannot be circulated well enough ahead for personal research to be carried out on specific questions. Thus,for example,when'soap dispensers' are being considered a spirited discussion develops,one party favouring dispensers, the other soap tablets.Both sides drawing only on rather limited personal recollections. There can be no useful discussion of the general economics,anti-infection or distribution problems, since there is no data available during discussion,although there is at least manufacturers literature on this topic.

Consultation

In the later stages the architect and equipment planner must know in detail what happens in every work group (e.g.porters). They will want to know both what should happen and what does happen. Senior members of hospital staff often cannot supply these details, and yet there is sometimes little consultation of appropriate representatives.

The so-called 'linear programming' technique recently promulgated by the Ministry will be most effective when those responsible for project planning are given the time to think about it and carry it out.

PART 4 Conclusions

1. The organisation of the early stages of planning within some of the Regional Hospital Boards is not satisfactory.

2 At Hospital Management Committee level there is sometimes very little idea of the magnitude or the nature of the work to be carried out before the building and equipment planning brief can be started.

3 Systems analysis as a tool for the evolution of a building brief is only in its infancy among architects, particularly those new to hospital planning.

PART 5 Recommendations

1 This team to undertake a small enquiry at the regional hospital board into the systems analyses and systems decisions made there. The proposed method would be to select one system, for example the employment of fully mobile beds, and analyse the entire decision making procedure employed.

2 In the case even of redevelopment projects, at least one full-time officer and preferably more (i.e. Project Officers, if not a Project Team) should be appointed to run the research and other procedures needed in the enormous programme of work which is required in the planning of a new hospital. These officers should be very thoroughly briefed in their way of working by the Architect and officers of the regional board before they take up their posts with the hospital management committee.

3 The firm of architects working on the West Middlesex Hospital redevelopment project is preparing, with some help from the RCA team, a step-by-step briefing procedure. This is designed to enable architects, equipment planners and 'project officers' to build up a body of knowledge describing the real operational requirements that the new building must fulfil.
Draft papers arising from this work will be discussed with the King Edward's Hospital Fund as soon as they are available.