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HOSPITAL PLANNING AND PROVISION FOR EDUCATION AND TRAINING ACTIVITIES

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The hospital has an important role to play in the education of health personnel, as the hospital system must include provisions for training the staff that will be needed to man all the health services of the country - curative and preventive. Qualified nurses will be needed in increasing numbers, not only to staff the new or reorganized hospitals, but also to undertake nursing duties in homes, factories, dispensaries, health centres and clinics.

The role played in nursing education by the nursing, public health nursing and ancillary services have been presented in other papers to this Seminar and we would stress that it is essential that all such matters are well considered before the preparation of the final programme which will form the basis of the hospital planning and design.

The fact that nursing education will be provided not only establishes a need for direct teaching facilities in the form of lecture rooms, practical classrooms etc., as well as student hostel accommodation, but also influences assessment of treatment and patient areas, their planning and equipment.

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The fact that different systems of nurse training will have a bearing upon the areas required within the hospital proper will be apparent from the two principal systems defined in the World Health Organization Manual on Hospital Planning and Administration.[1] Where the nursing student is regarded entirely as a student, receiving practical experience in the care of selected patients, and is additional to the basic nursing and ancillary staff, an increase in floor areas must receive consideration. Such additional area is not required when the nursing student is regarded as an apprentice who carries out certain duties - as opposed to studies - within the hospital staff establishment.

The pattern of nursing organization and education are so interrelated that decisions must be indicated to the Project Design Team if a satisfactory building design is to be achieved. It is the duty and vocation of the hospital architect and the nurse planning consultant to create a building that will be "the servant" of the medical and nursing professions. The success of a hospital design will be judged by the extent to which it facilitates the carrying out of medical and nursing techniques with the utmost efficiency and to the ultimate safety and benefit of the patient.

Although architecture embraces the asthetic as well as the practical solution to a design problem, in the hospital field the most important aspect is that of achieving a satisfactory and efficient plan - that is, a proper working relationship between rooms for various uses and departments for various purposes. Such relationships will be assessed from duties to be performed, inter-dependence, and periods of occupancy, and only if these are well considered with understanding can the result lead to efficiency in use. It is at this stage of hospital design and planning that the nurse herself has an important part to play. The nurse educator would do well to ensure that nursing staff are able to understand the pictorial presentation of the hospital plan, especially where symbols represent doors and windows, sanitary fittings, cupboards, fixed equipment etc. All of these elements are settled on plan long before the first brick is laid on site and to change them after building has commenced is not only costly but results in a compromise solution.

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[1] World Health Organization. Manual on Hospital Planning and Administration, Geneva : World Health Organization, Third Draft OMC/November 1963

A nurse must also acquire the ability to understand the potentialities and functions of some of the engineering installations, especially in the field of air conditioning or ventilation and its effect upon cross infection and bacteria control. Nursing in mechanically ventilated patient areas calls for a strict discipline of door closing, etc., if the design intention is not to be nullified.

Nursing staff of all grades and appointments may find themselves consulted and should be ready to express themselves clearly as to their particular requirement or point of view.

In addition to ensuring an adequate floor area for the observation of treatment techniques, privacy for the patient while undergoing nursing care etc., the hospital plan and building design must make possible the implementation of the many nursing techniques which must be mastered by the nursing student during her training experiences. This observation might also be said to apply to the design of equipment for it is futile to teach nursing students that drugs must be kept locked in special cupboards with strict warning and safety regulations, if they find no such well designed cupboards and warning lights, etc. available in the hospital.

When considering the design of the nursing unit and its bed complement, the pattern of nursing care and its part in nursing education must receive analytical consideration. In many of the developing countries where the steady growth of nursing recruitment is only now becoming clear, planning for successful functioning with a minimal trained staff is essential. To provide for the future, when an increase in staff numbers might be achieved, absolute flexibility of patient grouping and basic nursing facilities is essential. This can be achieved within the present day tendency for administrative nursing control of as many as 80 - 100 patients on one floor level if the facility units such as nurses' cloakrooms, head nurse's & doctors' offices, visitors' waiting area, etc., common to the whole floor area are centrally grouped for economy. A sub-division of facility rooms to include ward kitchen, patient dining, linen stores, treatment and utility suite etc. common to 40 - 50 patients, and a further grouping of the toilets, nurses station and 20 - 25 patients, make it possible to operate a steady build-up of nursing staff.

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The planning of a nursing unit to provide for flexibility in use by differing specialities, or sexes where within religious acceptance, and which also takes account of facilitating desirable techniques as taught to nursing students, might be designed as follows:

a.) a central section to serve a floor of two nursing units with nurses' cloakrooms, doctors' offices, heavy equipment store, visitors' area, etc.;

b.) an initial entry section to the nursing unit, providing those facilities that might be termed general, including the head nurse's office, ward kitchen, patients' dining and day rooms, etc. and where general traffic is permissible;

c.) two ward sections providing for fifteen patients each with their bath, sluice (utility) and toilet facility under control of a nurse's station that will also directly observe two single bed wards;

d.) a terminal corridor section accessible to each of the patient ward areas but providing the full treatment facility and where cleanliness can be maintained by the elimination of all non-essential or through traffic.

In all nursing unit planning the adequacy of staff and their training for physical observation of the patient, the psychology of personal nurse-patient relationship rather than remote or electronic control, the religious pattern in sickness, each play an important part in reaching a decision as to satisfactory design.

There are many departments where planning to enable compliance with training techniques or practices gives rise to special design consideration. The need to avoid cross infection in paediatric units and to cater for isolation nursing make it necessary to provide cubicle wards, a separate section for mothers with babies, and feed preparation or milk kitchens with "clean" and "dirty" areas properly separated. In the case of an isolation or infectious diseases unit separate circulation for visitors is essential while adequate hand washing and gown changing facilities for nursing staff dictate a different ward pattern.

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In the outpatient department, design must be so orientated that this first point of contact between patient and hospital system permits of the full recourse to psychology by the nurse. Waiting areas for patients must be homely and receptive and well away from the treatment zones or recovery areas. Arrangements for patients who are waiting to be in small groups are preferable and patients leaving after treatments should not require to pass through the waiting areas.

It is, perhaps, in the areas or departments where the teaching of procedures calling for sterile techniques that planning can best contribute to discipline and control. The route of access from staff entrance, through changing and shower facility to scrub-up and operating theatre; the automatic door operation between scrub-up and operating theatre to encourage adherence to non-touch techniques; the barrier between dirty utility and clean utility or sterilizing; the separate exit route for disposals; the location of lamp switches out of reach of the nurse performing sterile techniques, to keep temptation out of hands reach - all these and many more are the result of serious planning thought to make a positive contribution to the nurses task.

In the more advanced units for treatment of major burns, kidney transplantation, etc. where both air conditioning design and planning combine to produce bacteria-free zones, these specific aids from deliberate design become even more important. It is here that a simple patient area might be planned with the nurse access via an individual gowning lobby, each with a sluice facility and with the patient room to corridor door only opening from the inside thus "dictating" a gowned nurse control of the movement of the patient. This technique is so essential where the corridor access between ward and treatment suite is cleansed of bacteria by its air conditioning system in a given period of time, between each patient transfer.

In all these cases a visual reminder to the nurse can be given by the adoption of distinctive colours on equipment, cupboards or fittings in the room or area, such as a bright yellow indicating an area calling for sterile procedures or red in areas where soiled or dirty materials predominate.

Unfortunately, although planning and design may have been especially considered to enable things taught to be easily practised, a lapse by some medical or senior nursing staff preferring personal convenience or comfort

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to the enforcement of good techniques or procedures, would cancel the value of the well planned hospital.

We have considered the various elements of the hospital that may be affected in area or relative planning by the system adopted for nursing education. These are matters requiring individual consideration. There is, however, the specific provision of teaching facilities that must be considered once the location of the school of nursing has been decided in relation to the hospitals where subsequent practical experience is to be gained.

Where the academic teaching is related to the nursing student - as opposed to nurse apprentice - the school of nursing need not be sited, of necessity, within the hospital area. This decision might also be affected by the number of students available for training as in some developing countries one central school of nursing may be the satisfactory solution, from which school the students are sent to various hospitals for practical teaching.

Where the nurse is an apprentice who carries out certain duties as a member of the staff, then location in close proximity to the hospital proper becomes essential. This could be a separate building, with residential accommodation for both teachers and nurses in training or could be planned as an integral part of the main hospital building.

Premises and facilities provided may have to be used for several different educational programmes, if special training courses are being given in certain nursing specialties, such as obstetrics or psychiatry, or if more than one level of students are being educated, that is professional and auxiliary levels. On the other hand, the pattern followed may be to separate trainees and staff involved in specific areas of nursing : for instance, maternity services may be in separate premises to avoid the risk of cross infection.

The importance of these factors, together with the economy of accommodation, must receive consideration before the detailed brief of requirements is prepared.

Not only have some schools of nursing been established in Great Britain to serve more than one hospital, and to provide more than one kind of training programme, but recent proposals indicate that in the future

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nursing education will no longer be a comparatively isolated activity. Instead it may be associated with other forms of training including medical, paramedical and administrative. Multi-disciplinary training centres are already being planned at Cardiff and at King's College, London.

In all cases the annual intake of students will be related to the normal duration of the training course. The variables that must be taken into account in assessing the amount of accommodation required are:

- the total number of students;
- the number of classes enrolled during each school year.

In determining the size of the school the use of the facilities for the following additional purposes should be taken into consideration:

- in-service education of professional and auxiliary nursing personnel;
- instruction of ward and departmental staffs in new procedures and techniques, e.g. arising from the introduction of central supply services;
- the provision of lectures and film shows of general interest;
- reference and lending library facilities for the nursing staff.

The teaching department may be associated with one or more hospitals grouped together to provide the practice areas for the students. In this instance, the preferred site of the school will be adjacent to that hospital which provides clinical experience for the greatest number of students at all times. This will allow close cooperation between the service and teaching staff. The following factors should also be considered in choosing between the sites available:

- aspect and prospect;
- isolation from noise sources, e.g. traffic, service zones, etc.;
- easy and quick access in all weathers to the service areas and to the residence facilities.

Traffic to the school will be largely pedestrian, but provision should be made for access by motor vehicles.

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The teaching accommodation to be provided comprises:

(i) Classrooms. These are required for theoretical instruction and should be equipped with blackboard, storage unit, desks and chairs. In one of the classrooms there should be a small laboratory bench with sink and supply points. Approximately two square metres per student should be allowed.

(ii) Practice suite. It is preferable that this suite be sited at ground floor level to facilitate the movement of heavy equipment borrowed for instruction purposes. These suites are used to demonstrate various nursing procedures to students and to allow space in which they can practise them. The suites are used by students at all stages of training and consist of the rooms listed below, each of which is intended to accommodate a sub-group of not more than a dozen students at any one time. They will, in addition, be used for examinations. An area of some 115 square metres will be required.

a.) Demonstration Room. This room will be used for demonstration of nursing procedures. Fixed wall benching and storage units should be provided in addition to a hospital-pattern lavatory basin. Space will be required for a hospital bed and other movable equipment.

b.) Practice Area. This should be provided adjacent to the demonstration room and share with it a store for linen and other equipment. It should be equivalent in size to a four bed ward. Here the student will practise the ward procedures which have previously been demonstrated.

c.) Ancillary Rooms. A group of ancillary rooms consisting of clean and dirty utility rooms and a kitchenette are required, laid out in bays or planned within or adjoining the practice room. The ancillary rooms should be modelled on those found in practice and normally planned for the hospital wards.

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(iii) Lecture room. This should accommodate half the students in the 100 student school and one third in larger schools. The seating should be fixed, with an adjustable writing surface, and in 200, 300 and 400 student schools it should be tiered. Apparatus for film and slide projection will be required. The demonstration area should be provided with a blackboard, X-ray viewing screen, chart and paper storage, cupboards for skeleton, models and charts and a demonstration bench. Approximately 1.25 square metres per student should be allowed.

(iv) Discussion rooms. These will be used both for informal discussions or tutorials by groups of up to fifteen students, for meetings of the teaching staff or hospital nursing procedure meetings and also as private study rooms or small classrooms by groups of eight to ten students.

(v) Library. Fittings are required for books for loan, reference books and magazines. The layout should allow for reading desks or tables to be suitably grouped.

(vi) Laboratory. The laboratory work carried out in a school of nursing is of an elementary nature and instruction can normally be given in a classroom or lecture room or with the cooperation of the pathologist, in the pathology department of the hospital. In certain cases a laboratory of 56 square metres may be justified, equipped for elementary chemistry, bacteriology and physiology.

(vii) Students' common rooms. If the school of nursing is sited at some distance from the students' residential accommodation, e.g. where it serves a group of hospitals, a common room should be provided for their use between periods of duty and instruction.

(viii) Cloakrooms and locker space. The need for changing rooms, facilities for drying and lockers for clothing and the scale on which they should be provided will depend on the access from the school to the nurses' residential accommodation and main hospital, and on the number of teachers and students who are non-resident.

(ix) Kitchenette. This will be required for the preparation of light refreshments, only if the teaching department is not on the hospital site.

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The staff accommodation to be provided comprises:

(i) Principal tutor's (director of the school's) office. This room should provide accommodation for interviewing students and parents and for small staff meetings.

(ii) Teachers' offices. A larger room for the senior teacher and a smaller room for each remaining member of the teaching staff, will be required.

(iii) Clerical assistants' office. This should be adjacent to the principal tutor's office, with joint access to storage for school records and stationery, etc. A small waiting space is needed nearby.

(iv) Lecturers' room. This will be used by visiting lecturers and should be planned to be adjacent to the lecture room.

(v) Sanitary accommodation, cleaners' room, circulation space, etc.

If the number of nursing students justifies further accommodation for "on the ward" discussions or demonstrations a seminar room planned to serve two or three nursing units should be considered a desirable feature of the in-patient areas.

In certain countries the equipment required by nursing students in their practice on the wards is kept apart from the normal ward equipment and, for this purpose, a lock-up store adjacent to the seminar room would be convenient.

In conclusion, it will have been noted that the task of the hospital architect and the nurse planning consultant is to ensure that adequate accommodation is provided for the school of nursing either centrally or at the hospital site for teaching purposes and that the areas of rooms within the hospital complex are adequate to facilitate the presence of nursing students. This will ensure that all possible aids are incorporated to assist the nursing student in carrying out those practices which she has learned in theory, and above all to provide a hospital environment where, together with her medical colleagues, the best possible medical and nursing care might be provided to the benefit of the patient's full recovery.

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