

On hospital
laboratory planned on
the ground floor



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On the other hand, the departmental set-up may be decentralised, with separate sections working independently, with sections established in several areas such as wards and emergency, and a satellite laboratory for outpatient department or nursery. A decentralised laboratory set-up has the advantage of rapid availability of results, and having specific tests available where they are actually required. However, this is wasteful on manpower, equipment and materials resources. Lack of supervision and control can also lead to laxity in quality control. The organisation should therefore weigh the pros and cons of centralisation and decentralisation, the determining factors being the size of the hospital, quantum of workload, specialist departments, quantum of OPD work, and “ spread” of the hospital. A single central laboratory service offers a more effective and efficient use of limited availability of resources, greater flexibility, easier supervision and better technical standards.

1. Location

It is preferable to have the hospital laboratory planned on the ground floor and so located that it is easily accessible to the wards. In smaller hospitals, where there is significant outpatient load on the laboratory, it should be situated in between the outpatient services and the wards. In a larger hospital, the number of outpatients crowding the laboratory for giving laboratory samples may clog the department. Truly speaking, there is no need of a direct contact of the laboratory with patients unlike in other diagnostic areas. Therefore, in a larger hospital, the entry of outpatients to the laboratory can be obviated by opening a sample collection counter in the outpatient service area itself.

2.

Outpatient Sample Collection:

Provision of a laboratory sample collection facility in the outpatient department of large hospitals may be necessary because of the high quantum of OPD investigations. The room should be located at a suitable place in the outpatient department itself. The design of this area should include waiting room for the patients, venepuncture area and specimen toilets separately for male and female patients.

Provision should be made for containers with appropriate preservatives, for correct labelling of samples, and for keeping record of each patient. In busy hospitals, a laboratory section itself may have to be opened in the outpatient department and equipped to carry out commonly ordered tests. However, this should only be done if the volume of tests justifies it.

3. Area/Space:

In a small hospital, the laboratory facility may consist of a room in which all the routine urinalysis, haematology and some clinical chemistry investigations are carried out. As the hospital size increases, the requirement of technical and administrative services also increases with the necessity for departmentalisation of the laboratory.

At times a false sense of economy is sought to be achieved by curtailing the space requirements of the laboratory by shifting it in an insignificant place in the hospital. Developments taking place in diagnostic laboratory methods necessitate expansions and change. Therefore, laboratory service should be planned with an eye on future alterations and additions. The requirements

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depend on the extent of the proposed functions of the department, and its basis is that “adequate” working area for all activities carried out in the laboratory should be catered for. Technical and professional activities follow a pattern and have to be carried out with the help of certain gadgets, appliances, equipment or apparatus peculiar for each type of test. Primarily, space is required for these technical and professional activities. Secondary activities in support include patient waiting, specimen toilet, specimen taking, glass-washing, sterilizing, stores, preparation, etc. Materials, specimens and personnel must also move between rooms within the laboratory.

Therefore, the requirement of space for the laboratory consists of primary space, secondary space and circulation space.

4. Primary Space:

Primary space is the space utilised by technical staff for the primary task of carrying out professional work. This space is expressed in terms of laboratory space units.

5. Secondary Space:

Secondary space is the space utilised for all supportive activities.

Administrative space, viz. offices for the pathologist and others, rest and locker rooms, staff toilets, etc. should be considered separately from secondary space.

6. Circulation Space:

Circulation space is the space required for uncluttered movement of personnel and materials within the department between various technical work stations, rooms, stores and other auxiliary and administrative areas. A laboratory service for a 100 to 150-bedded hospital requires the same type of technical units as one for a 200 to 300-bedded hospital. Only the space requirements for the technical work areas of the units are reduced, because the workload is less and fewer technicians are needed.

7. Laboratory Space Unit (LSU):

The basic unit of planning for hospital laboratories is the laboratory space unit (LSU). It is a module of space and all calculations for technical work areas and some auxiliary areas are based on the LSU. Determining the arrangement of benching for a single or a group of technicians and placement and arrangement of equipment is facilitated by dividing the laboratory space in LSUs. A number of LSUs can be combined to form large technical areas, or a LSU can form part of an open laboratory space in a variety of ways.

A standard module also facilitates future rearrangement of the department without much disruption. As it can be partitioned off to carry out a specific technical function, it can also be subdivided as necessary to provide smaller workspaces.

8.

Dimensions and Space of LSU:

For allocation of primary space one of the most suitable sizes of a LSU is the one measuring 10' x 20' giving a LSU module of 200 sq ft (18.5 m²). These dimensions are determined by the limits of human reach and the clearance between benches required by workers.

Although a LSU can either be in the form of an open bay or an enclosed room, a LSU does not represent the dimensions of a room but only the amount of space necessary for various laboratory functions. As compared to square modules, a rectangular module is functionally more efficient because in the same overall space it can accommodate longer runs of benching due to its longer perimeter. On the other hand, a laboratory planned with rectangular modules will have deep bays.