

# PATIENT CARE UNITS IN EGYPTIAN HOSPITALS: COMPARATIVE ANALYTICAL STUDY

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## ABSTRACT

This paper discuss historic background of ward design evolution. Comparative analytical study has been carried between different types of wards in Egyptian hospitals by size, area and functional relationship. In conclusion the development of a design guidance and criteria for future provision of ward design in Egypt is attempted.

## INTRODUCTION

It is significant that for more than forty years, Egypt has accepted health care planning as an integrated part of its socioeconomic development. Indeed the Government regards equality of access to health care as a basic objective in order to raise the living standards of the individual.

Hence planning is carried out to define the magnitude of health problems determine priorities and define levels of expenditure on personnel, services and buildings. As a vital part of the plan increasing the efficiency of hospital and other health institutions is stressed.

But many hospitals which still a part to play in the health care delivery system are old and need either complete development or modernization by altering, expanding, replacing of functionally organizing the different departments and services.

### *Design Characteristics of Nursing Areas in Egyptian Hospitals: (Table 1)*

#### *1. Main characteristics of patients' care units during the period (1900-1950)*

The number of patients in each ward reached 25 to 30 patients. It consists of an open area open ward (80% of the beds) and private rooms (20% of the beds).

In the open ward the beds were located perpendicular to the walls where a window was provided between every two beds. The nurses' base was located at the centre of the ward Fig. (1).

Although the nursing unit concept was not clear in these hospitals, as supporting medical and non-medical services did not follow a clear or well defined pattern.

In general one room for nurses, another room for doctors and floor kitchen were provided at the end of the unit in addition to other services.

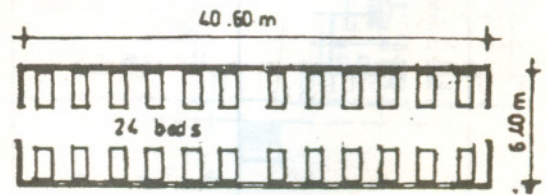


Figure 1. Open ward plan (24 beds) University Hospital Alexandria Medical School, Alexandria.

The advantage of this type are provision of direct and continuous observation of patients, natural ventilation and lighting.

#### *2. Main Characteristics of Patients Areas During the Period (1950-1960)*

Foreign influence produced ward layouts unsuited to our local conditions, (availability of personnel and local practice of delivery of medical care).

In this type rooms replaced the open wards, where the number of patients per room varies from 1-6 patients Figs. (2,3,4).

In general the unit consists of rooms located at one side of the corridor where as services (nurses' station, treatment room, stores, etc.) were located on the other side Fig. (5).

The disadvantage of this type is the lack of flexibility in bed use and assignment according to access and sex and long distance of circulation for both medical staff and medical supplies.

#### *3. Main characteristics of patients' areas during the period (1970-1985)*

The number of patients in each unit varies from 20 to 40 patients. Each two units are organically linked together to form a larger unit of 40 to 80 beds Fig. (6).

Table 1. Design characteristics of nursing areas in Egyptian hospitals.

period	Room Size	Hospital	Room Area	Area/bed	Groupings
1900-1950	Open ward for about (24 beds) with common bathrooms, Figure (1)	University Hospital Alexandria Medical School. Alexandria.	260 m <sup>2</sup>	10.8 m <sup>2</sup>	<p>* The nursing unit is a large hall in rectangular shape, without containing any partitions, it contains 24 beds.</p> <p>* The beds are located on both side walls at right angles. The created corridor in the middle is used for circulation and connection with other units.</p> <p>* The ward is provided with windows between every two beds.</p> <p>* The ward doesn't allow for patients' privacy, preventive of noise and infection.</p>
1950-1960	single bed room with private bath, Figure (2)	Heliopolis Hospital. Cairo	15.0 m <sup>2</sup>	15.0 m <sup>2</sup>	* The beds are separated from each other by cloth curtains, fixed to tubes hanging to the walls of the room.
	Double bed room with common bath, Figure (3)	The Cairo Univ Students' hospital Cairo.	14.0 m <sup>2</sup>	7.0 m <sup>2</sup>	* The patients rooms are extending along the corridor on one side and wards' service extending on the other side Figure (5). Which causes long distances and lack adequate groupings.
	Ward of 6 beds with common bathrooms, Figure (4)	Old Cairo Hospital (Third class wards). Cairo	43.0 m <sup>2</sup>	7.0 m <sup>2</sup>	
1970-1985	2 bed/room 4 bed/room and single rooms for separation Figure (5)	Ain-Shams University Hospital Cairo	58.0 m <sup>2</sup> 4 bed/room	14.5 m <sup>2</sup>	<p>* Grouping of beds according to access and sexes has become possible.</p> <p>* Introduction new activities and specialities in the patient area.</p> <p>* Producing more facilities and observation and control from the nurses base, and reducing walking distances for nurses Figure (6).</p>

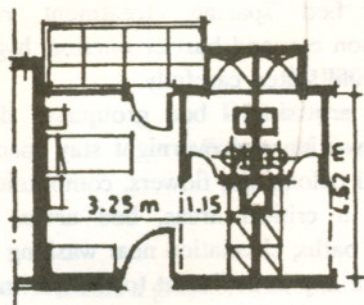


Figure 2. Single bed room with private bathroom Helioplis Hospital Cairo.

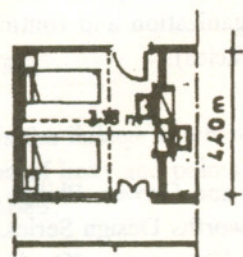


Figure 3. Double bed room with common bathrooms. The Cairo University Students' Hospital, Cairo.

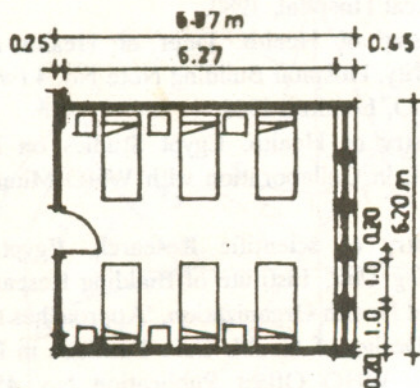


Figure 4. Ward of 6 beds with common bathrooms old Cairo Horspital, Cairo.

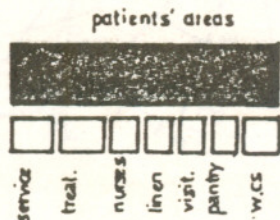


Figure 5. Diagram illustrates the grouping of the nurse working area to other areas in the ward unit.

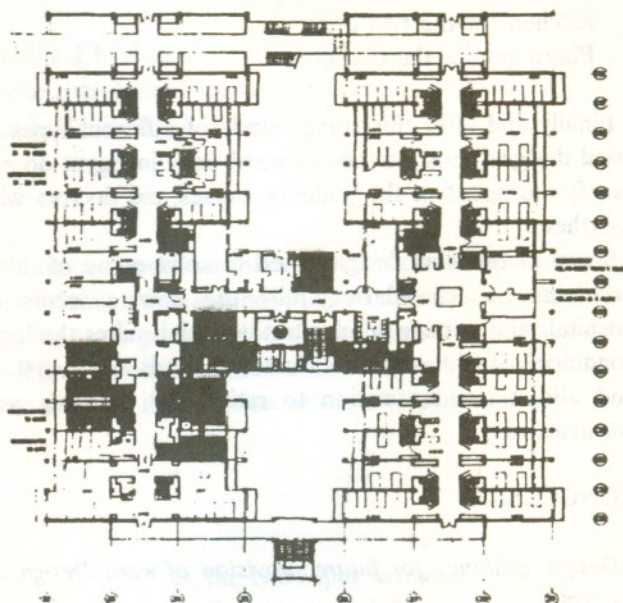


Figure 6. Patient Care unit consists of (4 beds and 2 beds) Ain-Shams University Hospital-Cairo.

The components of each unit are divided into four zones, where the supporting services were located centrally to the patients' areas. The four zones consists of:

*A. Patient area*

Rooms for 6 patients with common toilets.  
private rooms each with two beds and bathrooms.

*B. Nurses' base*

Nurses' station (facing the patients' area).  
preparation room.  
clean/dirty utility room.

*C. Examination and Treatment area*

Treatment rooms.  
Doctors' room.  
Tutorial room.  
Medical secretary room.  
This areas is serving the two units).

*D. House Keeping Area*

Store for each unit.  
linen store for each unit.

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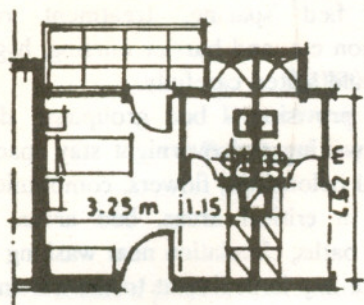


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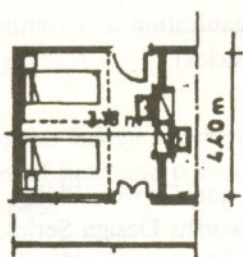


Figure 3. Double bed room with common bathrooms. The Cairo University Students' Hospital, Cairo.

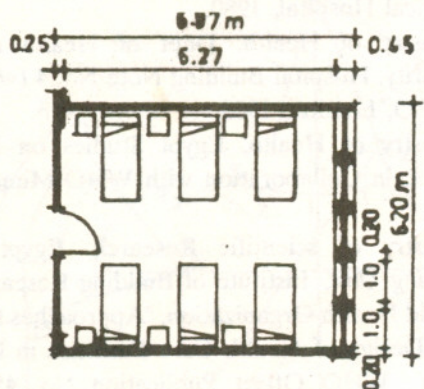


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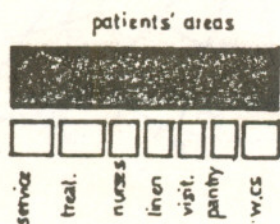


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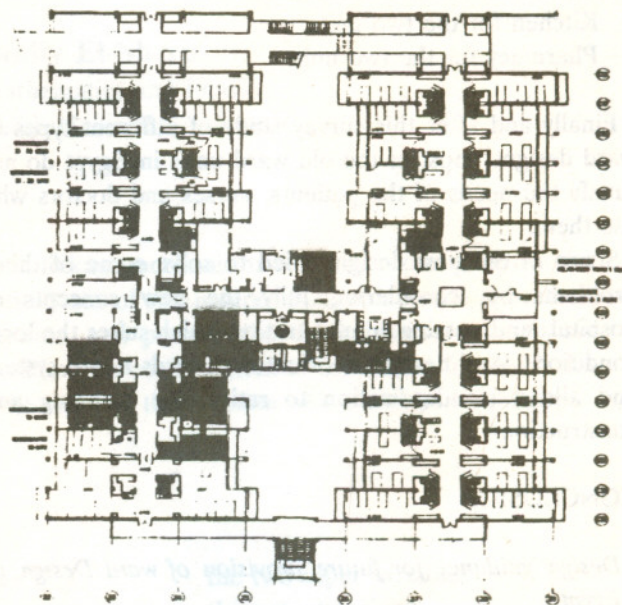


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Treatment rooms.  
Doctors' room.  
Tutorial room.  
Medical secretary room.  
This areas is serving the two units).

*D. House Keeping Area*

Store for each unit.  
linen store for each unit.

Janitor closet for each unit  
 Kitchen for the two units.  
 Pharmacy for the two units.

Finally and after this survey study of different types of ward designs, most of the old ward units in Egypt do not satisfy the needs of the patients, nurses and doctors who use them.

Some of the new designs tried to solve some of these problems by: considering fully the new concepts of hospitals and nursing administration which suites the local conditions. And designs is oriented towards a grid system and allows standardization to rationalize planning and construction.

## CONCLUSION

### *Design guidance for future provision of ward Design in Egypt*

It must be stressed at the outset that a systematic approach is essential in making a functional analysis of any ward design and of the satisfactory grouping of rooms and the relationship of these groups.

It should be noted that good design in itself need not involve more expense; it is only the provision of extra accommodation and services which costs more.

It is recognised that ward plans will have to be looked at from other points of view, e.g. how economical in terms of area, relationship of bed/ancillary/circulation spaces, and requirements of fire precautions.

### *Criteria for ward Design and Evaluation*

Finally I would like to sum up and stress the main criteria which can be followed in both design and evaluation of wards.

- \* Flexibility in use (medical, nursing, admin.).  
 How do wards cope with demands fluctuating with speciality ?
- \* Adaptability of patterns of nursing care and allocation of patients. How easy is it to group or to nurse by teams or by job assignment or by dependency?
- \* Provision for case of observation for patient safety and welfare-e.g. position of nurses station in relation to serious cases and supervision generally.
- \* Functional relationships of rooms and storage points and ancillary room relationships.
- \* Measures for control of infection - numbers of single

rooms, bed spacing, treatment rooms, special ventilation etc. and barrier nursing, hygienic practices etc. should suited carefully.

- \* Patient provision - bed groupings, day space, toilet access, waiting and overnight stay spaces for visitors, personal belongings, flowers, communications etc.
- \* Spaces in critical areas, bed areas, single rooms, assisted baths, circulation near washing cubicles, w.c. - is there any impediment to the nursing function?
- \* Storage provision - suitability, accessibility of cupboards, shelves, racks etc.
- \* Labour serving supply and disposal systems.
- \* Domestic services: provision for this.
- \* Ward use - flow of personnel and material i.e. movement, organization and routine. (compared with operational policies).

## REFERENCES

- [1] Cox, Antony and Groves, Philip, *Design for Health Care*, Butterworths Design Series, London, 1981.
- [2] Hoffmann, Hermann, "Quality assurance in Hospitals", *World Hospitals*, vol-24, No. 3, pp. 24-28, International Hospital Federation, London, UK, 1988.
- [3] J. Belmont, et al, Ain Shams University Hospital, Surgical Hospital, 1980.
- [4] Ministry of Health, Dept of Health and Social Security, Hospital Building Note No. 4 (ward Units). HMSO, London, 1968.
- [5] Ministry of Health, Egypt Studies on Nursing in Egypt, in Collaboration with WHO-Mimeographed, 1973.
- [6] Ministry of scientific Research, Egypt, *Hospital Nursing Unit*, Institute of Building Research, 1963.
- [7] World Health Organization, "Approaches to planning and Design of Health Care Facilities in Developing Area", WHO Offset Publication No. 45, Geneva, 1979.