

## **Hospital Planning and Administration-534E8B**

### **Case Studies with Questions**

#### **UNIT I: Hospital System and Administration**

#### **Case Study: City General Hospital Transformation Challenge**

City General Hospital, a 100-year-old community hospital with 150 beds, is facing significant challenges in the modern healthcare landscape. Originally established as a charitable institution focusing on basic medical care, the hospital now needs to evolve to meet contemporary healthcare demands. The board of directors has appointed Dr. Sarah Kumar as the new Hospital Administrator with a mandate to transform the institution.

The hospital currently operates as a general secondary care facility but lacks specialization. Patient satisfaction scores are declining, with complaints about long waiting times, outdated facilities, and limited specialized services. The hospital role in the community has become unclear - should it focus on emergency care, become a specialty center, or maintain its general care approach?

Dr. Kumar discovers that the hospital has grown organically without scientific planning. Departments are scattered across multiple buildings added over decades. There is no clear hospital system in place - departments operate in silos, communication is poor, and resource allocation is inefficient. The existing infrastructure does not support modern medical practices or patient flow patterns.

The board wants Dr. Kumar to present a comprehensive plan that addresses the hospital classification, defines its role in the changing healthcare environment, establishes an effective hospital administration system, and demonstrates the need for scientific planning and redesign of the facility.

**Questions:**

- 1. How should City General Hospital be classified based on its current status and future potential? Discuss the changing role of hospitals in modern healthcare and recommend what role this hospital should adopt.**
- 2. Explain the essential elements of an effective hospital administration system that Dr. Kumar should implement. What are the key administrative functions needed?**
- 3. Make a case for why scientific planning and design of hospitals is crucial for City General Hospital. What problems are caused by the lack of systematic planning?**

**UNIT II: Hospital Planning**

**Case Study: MediCare Expansion Project**

MediCare Hospital, a successful 200-bed multispecialty hospital in a tier-2 city, plans to expand its capacity to 400 beds to meet growing demand. The hospital management has allocated a budget of Rs. 150 crores for the expansion project. However, the planning committee faces several critical decisions and challenges.

The first challenge is determining the optimal size for the expanded facility.

Should they build exactly 400 beds, or should they plan for future growth

beyond that? The location is another concern - they have three options: expand

at the current site with limited land, relocate to a larger plot on the city outskirts, or establish a satellite facility in a neighboring growing area.

The hospital board has received proposals from three architectural firms, each with different expertise and fee structures. Firm A specializes in large hospital projects but is expensive. Firm B has designed several mid-sized hospitals at moderate costs. Firm C offers the lowest quote but has limited hospital design experience. The layout design is crucial - the existing hospital suffers from inefficient patient flow and staff movement.

Additionally, the hospital needs to decide on equipment procurement - should they equip the entire expanded facility immediately or phase it out? The CFO is concerned about cash flow, while medical heads want comprehensive equipment from day one. The planning process has stalled due to these conflicting priorities and lack of systematic approach.

**Questions:**

1. Apply the principles of planning and planning process to MediCare expansion project. How should they determine the optimal hospital size and make the location decision?
2. What criteria should MediCare use for selecting the hospital architect? Evaluate the three architectural firm options and recommend the best choice with justification.
3. Discuss the importance of hospital layout in the planning process. What layout principles should guide MediCare expansion design? How should they approach equipping the hospital?

### **UNIT III: Technical Analysis**

#### **Case Study: HealthFirst Hospital Capacity Planning Dilemma**

HealthFirst Hospital is planning to establish a new 300-bed multi-specialty hospital in a rapidly developing suburban area of Chennai. The project feasibility team, led by consultant Rajesh Sharma, must conduct a comprehensive technical analysis to justify the investment and guide the planning process.

The area has a population of 500,000 residents, growing at 8% annually due to new IT parks and residential developments. Currently, there are two small 50-bed hospitals and several clinics, but no major tertiary care facility. Market research shows that residents travel 15-25 km to existing large hospitals in the city for specialized care. However, Rajesh is uncertain about the actual demand versus perceived need.

The bed planning exercise is complex. Initial calculations suggest 300 beds, but Rajesh must consider specialty-wise distribution, bed occupancy rates, and seasonal variations. Several factors could influence hospital utilization - insurance penetration is growing (currently 40%), the area demographic profile skews young with high purchasing power, and corporate health packages are becoming popular.

The project cost estimation is challenging. Land prices in the area have doubled in two years, and the team found a 5-acre plot for Rs. 50 crores. They need to determine space requirements for all departments, support services, parking, and future expansion. The architects have provided preliminary drawings, but the board wants clarity on critical documents needed before approving the project.

**Questions:**

1. Explain how HealthFirst should assess the extent of need for hospital services in the target area. Distinguish between demand and need, and identify key factors that will influence hospital utilization.
2. Conduct a bed planning analysis for HealthFirst Hospital. How should beds be distributed across specialties? What factors should be considered in determining bed capacity?
3. Discuss the project cost estimation process including land requirements and space requirements for different zones. What hospital drawings and documents are essential for project approval?

**UNIT IV: Hospital Design**

**Case Study: Wellness Hospital Design Crisis**

Wellness Hospital, a 250-bed facility under construction, faces serious design flaws discovered during the building inspection. The architect, hired based on lowest quote rather than expertise, has created a design that violates basic hospital planning principles. The project is 40% complete, and the hospital administration must decide whether to continue or make costly modifications.

The entrance and ambulatory zone is poorly planned - the main entrance, emergency entrance, and ambulance bay are all on the same side, creating potential traffic chaos. Outpatient departments are on the third floor with no dedicated elevators, causing patient inconvenience. The diagnostic zone has X-ray and CT scan rooms adjacent to patient waiting areas without proper radiation shielding considerations.

The intermediate zone including general wards is far from nursing stations, making supervision difficult. The critical zone with ICU and operation theaters is on the same floor as general wards with no clear separation or restricted access. The placement of the ICU next to a noisy service elevator shaft raises infection control concerns. Operating theaters lack proper laminar airflow planning.

The service zone - including kitchen, laundry, and waste management - is centrally located, causing potential contamination risks. The administrative zone is in a corner with poor accessibility for patients and staff. The medical records department is near the kitchen, risking damage to documents. Waste disposal routes cross patient care areas.

### **Questions:**

1. Analyze the design flaws in Wellness Hospital entrance and ambulatory zone, and diagnostic zone. What are the correct building requirements and design principles for these zones?
2. Explain the proper design requirements for the intermediate zone and critical zone. Why is separation between these zones essential, and how should they be designed?
3. Discuss the correct placement and design of the service zone and administrative zone. What modifications should Wellness Hospital make to fix the current design problems?

## **UNIT V: Facilities Planning and Standards**

### **Case Study: Apollo Heights Hospital Compliance Challenge**

Apollo Heights Hospital, a newly constructed 400-bed tertiary care facility, is preparing for accreditation. During pre-accreditation inspection, the audit team identified multiple deficiencies in facilities planning and adherence to standards. The hospital CEO, Mr. Venkat Rao, has three months to rectify issues before the final accreditation inspection.

The facilities planning review revealed several problems. The hospital has only two patient transport elevators for 400 beds, causing significant delays in patient movement. The food service system uses a centralized kitchen on the ground floor to serve patients on eight floors, but food arrives cold and quality suffers. The communication system relies on outdated intercom technology with no integration with the hospital information system.

The information system is fragmented - registration, billing, pharmacy, and laboratory use different software systems that do not communicate with each other. Minor facilities like staff rest areas, patient attendant waiting zones, and prayer rooms are inadequate or missing. The hospital lacks proper signage and wayfinding systems.

Standards compliance is another major issue. The hospital meets only 60% of mandatory standards and 40% of voluntary standards for accreditation.

Mechanical standards for air conditioning in critical areas are not met - operating theaters have inadequate air changes per hour. Electrical standards violations include insufficient emergency power backup and improper earthing. The centralized medical gas system lacks proper backup and monitoring. Most critically, biomedical waste handling procedures are inadequate with improper segregation and storage.

**Questions:**

1. Evaluate Apollo Heights Hospital facilities planning for transport, food services, communication, and information systems. What improvements are needed in each area?
2. Explain the difference between general standards, voluntary standards, and mandatory standards in hospitals. Discuss the mechanical and electrical standards that Apollo Heights must meet for accreditation.
3. Describe the standards for centralized medical gas systems and biomedical waste handling. What specific improvements must Apollo Heights implement to achieve compliance in these critical areas?