IHF – UIA Collaboration project: reducing hospital operating cost through better design

An Operators Perspective
For Public and Private Hospitals

Addressing the Challenge of Patient-Centered Care and Safety

2016 IHFDURBAN 40th World Hospital Hospital Congress
What is your role in patient care?
The TOOL BOX

PEOPLE

PLACE

EQUIPMENT/MATERIALS
What matters in hospital design?

• SAFETY
• QUALITY
• EFFICIENCY
• PATIENT SATISFACTION
The Road to Success begins with the Destination

SUCCESSFUL OPERATIONS
EQUIPMENT AND CONSTRUCTION
COMMISSIONING
OPERATIONAL DESIGN
FUNCTIONAL DESIGN
INTEGRATED DESIGN
CLEAR VISION
INTEGRATED APPROACH: Form Follows Function

SAFE
EFFICIENT
HIGH PATIENT SATISFACTION
PROFITABILITY
SUSTAINABILITY

CHARACTER
FORM
ENERGY EFFICIENCY
ARCHITECTURAL EFFICIENCY

SUCCESSFUL IMPLEMENTATION OF VISION
WHY IS IT IMPORTANT:
Impact on Operational Success

- **Vision**
- **Planning and Design**
  - Right Service, Right Size & Capacity, Right Adjacencies
- **Staff Competency**
  - Right Number, Right Mix, Right Skills
- **Efficient Operations**
  - Right Dx, Right Tx, Right Time
Why is this important?

WASTE = RESOURCES
MORE PATIENT CARE
LOAN PAYBACK
ROI FOR INVESTORS
LONG TERM SUSTAINABILITY

HELPS US MEET OUR OBLIGATIONS TO THE COMMUNITY, OWNERS, PATIENTS
PLANNING AND DESIGN: Impact on Operations

**FUNCTIONAL DESIGN**
- Vision
- Define Services
- Project Volumes
- Project Staffing
- Define Capacity Needs
- Space Plan

**ARCHITECTURAL DESIGN**
- Character of Building
- Type of Space
- Size of Space
- Circulation and Adjacencies
- Number and Size of Major Spaces
- Parameters for Building Size

**OPERATIONS**
- Branding and Identity
- Maximize Demand
- Optimize Demand
- Safety & Efficiency
- Positive ROI Impact
- Capex and ROI Impact
IMPACT OF OPERATING THEATRE PLANNING

Lost Revenue
USD 5.1 million USD per OT/year (estimate)

CAPEX Loss of 2.75 million USD per OT plus ongoing maintenance

Underbuild 1 OT

Overbuild 1 OT
EXAMPLES: #1 Safety
SAFETY

• “To Err Is Human: Building a Safer Health System”
  Institute of Medicine 1999

• 44,000 to 98,000 preventable deaths annually due to medical errors

• Majority of errors due to systems failures
  • Poor communication
  • Numerous hand-offs
Reducing Patient Hand-Offs

Facility Strategies:

• Acuity adaptable rooms or bays minimizing transfers

• Grouping prep and recovery bays near treatment areas in the ambulatory setting
Reducing Hospital Acquired Infections (HAI)

• According to the Center for Disease Control (CDC):
  • 2 Million HAI per year
  • 90,000 patients die
  • Clean hands are the single most important factor
Where to Place Handwashing Sinks

- It is not the number of handwashing sinks, but the location

<table>
<thead>
<tr>
<th>Handwashing Sink Location</th>
<th>% Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three sinks/unit in corridor</td>
<td>53%</td>
</tr>
<tr>
<td>One sink per patient room in toilet room</td>
<td>23%</td>
</tr>
<tr>
<td>One sink per room by door</td>
<td>70%</td>
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</tbody>
</table>
**IMPACT OF: Decentralized Nursing Stations**

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>SAFETY</th>
<th>EFFICIENCY</th>
<th>PATIENT SATISFACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased visibility of patient</td>
<td>Reduce nurse walking distance by 30%</td>
<td>Faster Response Time</td>
<td></td>
</tr>
<tr>
<td>OUTCOME</td>
<td>Reduces Fall Rate by 50% (U.S. Cost of Falls USD20.2 billion)</td>
<td>40% more RN patient Room Visits</td>
<td>Patients feel increased confidence in their care</td>
</tr>
</tbody>
</table>
34% of errors occur while nurse administering the drug

Facility Strategies:

- Medication stored at bedside
- Quiet, well-lit, enclosed medication room
Prevent Patient Falls

Facility Strategies: Decentralizing caregiver workstations

• 70% reduction in falls

• Applicable to all care areas
  • ED
  • Recovery room

Source: Hendrich; Healthcare Design Magazine; Feb 2005
Reduce Nurse Fatigue

Fatigue, both physical and mental, contributes to errors

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<table>
<thead>
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</thead>
<tbody>
<tr>
<td><strong>Average Walking by Nurses per 8 Hour Shift</strong></td>
<td></td>
</tr>
<tr>
<td>Average walking distance per shift</td>
<td>3.1 miles</td>
</tr>
<tr>
<td></td>
<td>5 km</td>
</tr>
<tr>
<td>Percentage of time spent walking</td>
<td>29%</td>
</tr>
</tbody>
</table>
Reduce Nurse Fatigue

Decentralize supplies, medications, and information to the point-of-care

Supplies at the point-of-care
  • Eliminates 700 to 800 trips to the supply room per week per unit

Medications at the point-of-care
  • Reduces nurses walking by 1 mile/shift

Sources: Robert Wood Johnson Foundation; SSM Health Care
Errors are reduced by a transparent environment that encourages patient involvement

*Joint Commission’s National Safety Goals*

Facility Strategies:

- Patient information board
- Family seating in room
#2 Efficiency
Reducing Variation

Lean Management System:
Standardized work... leads to standardized spaces

Facility Strategies:
• Universal or standardized patient room design
• Consistent operational support systems
• Standardized support rooms
Optimizing Nurses Time

Why focus on nurses:

• Approximately 50% of the hospital workforce
How Nurses Spend Their Time

- Patient Care: 78%
- Unit Functions: 3%
- Personal/Administrative: 12%
- Waste: 7%

7% is equivalent to 18 days/year
Where Nurses Spend Their Time

**Location of Nurses**

- Nurses Station: 38%
- Patient Rooms: 31%
- Patient Unit: 24%
- Off Unit: 7%

Need to move nurses closer to the point-of-care
Key Steps to Operational Planning to ensure Form Follows Function

• Feasibility Study
• Business Plan
• Estimate Bed Need by Service
• Physician need by specialty
• Projected workload volumes
• Major room needs
• Space requirements
• Staffing requirements
• Define Operating Systems

LONG TERM SUSTAINABILITY
DEFINE OPERATING SYSTEMS:
Movement of People, Information, Materials

Communication and Transport Systems
Scheduling, Registration, and Point of Service Fee Collection
Scheduling for Operative and Procedural Services
Collections
Food Service

Housekeeping Services
Laboratory Services
Supply Chain (Materials Management)
Medical Records
Pharmacy
Rehabilitation Services
Respiratory Care
Security
Sterile Processing
Waste Stream
Keys to Reducing Costs through Better Design

- **Set your GPS**: Have a clear understanding of vision and business model from the Beginning
- **Start with the Last**: Understand that space requirements are driven by operational planning and systems design.
- Engage a fully integrated team at the onset.
- Always “take a pulse” on the vision and business plan.