Hospitals and Nursing Homes of the Future

Lisa Wickens - Deputy Director, Office of Health Systems Management
Neil Benjamin - Assistant Director, Division of Health Facility Planning
Thomas Jung - Director, Bureau of Architectural & Engineering Facility Planning

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Factors Driving the Need for Change:

- Technology
- Patient Preference and Acuity
- Fiscal Pressures – Providers, Payors, Employers
- Reserve Capacity
- Staffing Issues – Cost, Recruitment, Shortages
- Difficulty Navigating the Convoluted System
- Competition-unregulated and regulated entities
Factors Specific to Acute Care:

- Out Migration of Services
- Relationship with Physicians
- Availability of Capital
Factors Specific to Long Term Care

- Consumer Preference for Independence, Least Restrictive Setting
- Integration with the Community
- Adaptability for Differing Acuity & Individual Needs
- Specialty Services
Strategies for the Future

- Pay for Performance / Quality Improvement
- Digital Hospitals
- Centers of Excellence
- Flexibility
  - Reimbursement
  - Program
  - Construction
- Green Technology
- Improved / Flexible Work Environment
- Alternative Delivery Models
- Adaptable Construction
Consumers are more Discerning

- Patient/Resident-Centered Care
- Fast changing technology & expectations
  - accelerates obsolescence of Physical Plant
  - increases competition among providers

St. Peter’s Hospital
Albany, NY
Acute Care Hospitals

Albany Medical Center, Albany NY
1920 Hospital Configuration

- M/S Bed Wards
- Surgical Bed Ward
- Lab & Support Functions
- Administration & Main Lobby
- Surgical Suite

Source: Health Technology Center - HealthTech
1950 Hospital Configuration

- TB Unit
- Polio Unit
- Maternity Unit
- M/S Bed Unit(s)
- Surgical & Special Care Units
- Labs & Support Services
- Lobby/Main Entry
- Administration & Records
- Surgery Suite
- Emergency

Source: Health Technology Center - HealthTech
HOSPITALS in the FUTURE

• **How many beds will we need?**
  – Population growing
  – Outpatient modalities continue to increase
  – Public Good Services
  – Definition of Capacity

• **Is Decentralization the future of technology?**
  – Miniaturization of diagnostics and equipment
  – Digital Technology & Communications

• **Regulatory Landscape – Physicians as Competitors**
Functional Evolution will impact design...

Albany Medical Center, Albany NY

• **Emergency Room is new “front door”**
Increased emphasis on flexibility...

- Universal Interventional Rooms
  - Surgery
  - Minor Procedures
  - Catheterization
  - Minimally Invasive

GE CT Scanner
Today’s Surgical Suite

Operating Rooms

Sterile Core

Support Services

Staff

Post Anesthesia Care Unit

Pre-Op & Stage 2 Recovery

Endoscopy and Minor Procedures

Radiology & Imaging

Cardiac Catheterization Labs

Source: Health Technology Center - HealthTech
Facilitate operational efficiencies...

- Combining Pre- and Post-Op...
- Combine Radiology and Surgery...
- Patient Care “pods” should be adjacent
  - Interchangeable
  - Allow “flexing” to accommodate fluctuations in demand
- Centralize interventional suites vs scattered approach
Tomorrow’s Surgical Suite

- Staff & Support
- Catheterization & Vascular Intervention Module
- Image-Guided Surgical Module
- Minor Procedure Module
- Post Anesthesia Care Unit and Recovery
- Intake and Pre-Op

Source: Health Technology Center - HealthTech
Also structural design...

• Separate “Structure” from “Utilities”
  – “…capital investment needs to be focused on flexibility, interoperability and technology as opposed to ‘bricks and mortar’…”
    – Source: Healthcare Reform Working Group – 11/18/04

• “Demountable” partitions?
• Medical Equipment

• Lights and partitions
  – Hospitals want to use them...but perhaps not own them (Lease?)
1920’s Hospital Ward

16 Bed Ward

Gang Toilet
1950’s Hospital Rooms

- **4-Bedded Room**: 320 SF (80/bed)
- **2-Bedded Room**: 160 SF (80/bed)

Source: Health Technology Center - HealthTech
1970’s Hospital Rooms

- **Toilet Room w/Shower**
- **2-Bedded Room**
  - 200 SF (100/bed)
- **Toilet Room w/Shower**
- **1-Bedded Room**
  - 120 SF

Source: Health Technology Center - HealthTech
Digital Integration

- Digital Systems and Information Technology
  - Integrate across continuum of care
  - Clinical-Administrative-Financial
  - Interoperability with Physicians

Raytheon Company EPTS
Anti-”silo” Technology

- The Digital Hospital...
  - Point of Care: Lab Work & Vitals
- Clinical Programs and Functional Systems will likely replace Department Organization.....
- Capital Access is Critical to Success
Implant Technology

- Ventricular assist devices for hearts
- Artificial lungs (short-term pulmonary support)
- Bioactive bone cements

Source: National Tissue Engineering Center
New Hospital Models....

- Critical Access
- LTACH
- Freestanding Emergency Rooms
- Mobile Services

Mobile Cardiac Catheterization
Mobile Medical International Corporation
Reserve Capacity: Care Capability

- **Planning for Care**

- **Flexibility in bed capacity.**

Source: Texas A&M University College of Architecture, Texas A&M University System Health Science Center, Office of Homeland Security