Architecture: Space Planning and The Development Process

Sponsored by: Aptium Oncology

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Principal
EwingCole

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EwingCole

- National Healthcare Expertise
- 300+ Professionals (Philadelphia, PA, Washington, DC, Irvine, CA, Cleveland, OH)
EwingCole Healthcare
Representative Clients

- Cancer Treatment Centers of America
- Cedars-Sinai Medical Center
- Children’s Hospital of New York
- City of Hope Medical Center
- Clara Maass Medical Center
- Deborah Heart and Lung Center
- Fox Chase Cancer Center
- Geisinger Health System
- Loma Linda Cancer Institute

- Memorial Sloan-Kettering Cancer Center
- North Shore Long Island Jewish Health System
- Saint Jude Children’s Research Hospital
- Sanford Children’s Hospital
- SUNY, Stony Brook
- University of California, Irvine Medical System

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VP, Medical Affairs, Aptium Oncology Inc.

- Aptium works with hospitals and physicians to design, finance, build and manage comprehensive cancer centers
- Aptium’s comprehensive cancer center model brings all the disciplines and services involved in cancer care under one roof.
- They are customized to their market; tailored to their situation.
The Aptium Network

Host Hospitals Include

- Cedars-Sinai Medical Center, CALIFORNIA
- Alta Bates Summit Medical Center, CALIFORNIA
- St. Vincent’s Hospital Manhattan, NEW YORK
- Desert Regional Medical Center, CALIFORNIA
- Mount Sinai Medical Center, FLORIDA
- Boca Raton Community Hospital, FLORIDA
- New York University Cancer Institute, NEW YORK
- Trinitas Hospital, NEW JERSEY

Agenda

- Demand for Services
- How to Measure Success
- Team, Team, Team
- Approach
  - Planning/development
  - Design
  - Construction
- Results: Case Study
  - Trinitas Comprehensive Cancer Center
Future of Cancer Care

- A growing demand for services
- An explosion of treatment options
- Uncertain financial climate
- Increasing administrative burdens

Common Hospital Service Line Goals

- Raise the level of cancer care in the community
  - Increase regional presence
  - Retain and attract leading physicians
  - Further enhance research programs and clinical protocols
- Increase cancer program profitability and cash flows
- Decrease patient out-migration
- Explore opportunities to partner with a 3rd party to meet objectives
  - Proven expertise
  - Access to funding
Pressures on Hospitals
CEO Top Concerns

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<th>Category</th>
<th>Percentage</th>
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<td>Physician and Hospital Relations</td>
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<td>Care for Uninsured</td>
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<td>Personnel Shortages</td>
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<td>Quality</td>
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<td>Patient Satisfaction</td>
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<td>Capacity</td>
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Source: Modern Healthcare, January 1, 2007

How To Measure Success

- Patient satisfaction
  - “I find it very relaxing even though circumstances dictate anxiety.”
  - “Your staff is the most compassionate, caring and courteous medical staff I have ever encountered; each and everyone of them treats you as a special person.”
  - “You should be extremely proud of your facility and of your magnificent staff!”
Results Overall Consensus - Positive

- Facility cleanliness: 97
- First way around facility: 93.7
- Waiting area comfort: 95.4
- Changing room privacy: 90.2

*Trinitas PG Database = All facilities in Press Ganey’s Outpatient Oncology Database

How To Measure Success?

- Patient satisfaction
- Staff satisfaction
  - “Everyone was surprised and delighted with the way it turned out”
  - “What I need to do my work is convenient to me. I turn around and there’s my supplies, my computer, my pharmacy, my patients.”
How To Measure Success?

- Patient satisfaction
- Staff satisfaction
- Market share

How To Measure Success?

- Patient satisfaction
- Staff satisfaction
- Market share
- Revenue Realization
Team, Team, Team

Vision and Mission
Charged with:
- Fiscal accountability
- Operational efficiencies, flow
- Evaluating and challenging design concepts
- Enhance user group participation
- Powerful voice/cheerleader

Team, Team, Team
Multi-Disciplinary Think Tank

Management
- Finance / medicine / nursing / cancer center administration
- Project champion / forward thinkers
- Executive leadership representative

Healthcare architect
- Quality management people
- Guest services
- Facilities management
Approach: Program

- Develop detailed business case including
  - Clinical program recommendations
  - Staffing
  - Equipment
  - Space requirements
Approach: Model Cancer Center
Recognized Convention

**Patient**
- Views of nature, daylight and sunlight
- Control of local environment
- Social support
- Privacy
- Nurse visibility
- Places for family/guests
- Tranquil, state-of-the-art environment

**Staff**
- Patient visibility
- Minimal footsteps to key areas
- Single point access to pharmacy
- Collaboration with other nurses
- Space for private conversations
- Ample supplies near at hand
- Places for personal effects
- Ergonomics
“It is the unqualified result of all my experiences with the sick, that second only to the need of fresh air is their need of light; that, after a close room, what hurts them most is a dark room.”

– Florence Nightingale

Approach: Model Cancer Center
Recognized Convention

Physicians
- Convenience, convenience, convenience
- Efficiency
- Privacy
- Marketable
- High-technology

Administration/Executive Leadership
- Revenue generating spaces

Equipment & Technology
- Latest, greatest, fastest, smallest, lightest
- Flexible
- Comprehensive & user friendly

Architecture
- Appropriate image
- Cost sensitive

Approach: Model Cancer Center
Recognized Convention
Approach: Model Cancer Center

Recognized Convention

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<tr>
<th>Patient Mark</th>
<th>Event</th>
<th>Lung</th>
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The Advisory Board – Oncology Roundtable Data

Privacy
- Individual dignity vs staff supervision
- Care giving
- Incorporation of family responsibilities vs. solo staff tasks

Lighting
- Dim vs bright

Noise control
- Sound attenuation vs hard, cleanable surfaces

Views of nature
- Window vs interior view
- Patients vs staff

Art
- Nature vs modern/abstract
Approach

Model Cancer Center

Key Influencers

Planning/Development

Processes

Design

Development

Design

Construction

Construction/Costs

Timeline

Patient & Staff Satisfaction

Post-Occupancy

Approach: Key Facility Influencers

Cancer Center

Physician Considerations

Market

Technology

Space/Regulation

Clinical Program

Staff
## Approach: Key Facility Influencers

### Market
- Competitive environment
- Patient expectation/quality

### Physician Considerations
- Physician practice pattern
- Comprehensive center
- Number of physicians

### Staff
- Recruitment
- Retention

### Clinical Programs
- Psychosocial services/ palliative care
- Research
- Integrative medicine
- Tumor site program

### Technology
- Electronic medical records
- Computer savvy
- Patient tracking

### Space/Regulation
- Expansion potential
- JCAHO/DOH/DCA/OSHPD
- Site considerations

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### Table: Facility Influencers

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<th>Market</th>
<th>Physicians</th>
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Approach: Clinical Program
Multi-Disciplinary Environment

URBAN

RURAL

Approach: Technology
Information/Patient Tracking

URBAN

RURAL
Approach

- Improved efficiencies
- Process re-engineering
- Cultural transformation opportunity
"The flow for the patients has been well thought out, not only to reduce patient apprehension, but to help the staff coordinate their care."

Chief, Radiation Oncology
Approach: Design Development
Percentage of Work/Fee by Architecture Firm

- Schematic design (planning) 15%
- Design clarifications 25%
- Construction documents 40%
- Construction administration 20%

Approach: Design Development
Room & Equipment Planning

Pharmacy
- Regulatory - sterile compounding (USP 797)
- Engineering – clean room ISO class 05
- Material management - storage, deliveries
- Environmental services - patient/pharmacy safety
- Architecture – door, millwork, ceiling, lights, aesthetics
Approach

- Project delivery methods
  - Design-Bid-Build
  - Construction management
  - Design-Build
Approach

- Model Cancer Center
- Key Influencers
- Planning/Development
- Design Development
- Construction
- Patient & Staff Satisfaction
- Post-Occupancy
- Processes
- Timeline
- Approach: Construction/Cost

- Budget
- Value matrix
- Cost containment
- Manage expectations
### Approach: Construction/Cost

Northeast Urban Cancer Center – 2007 costs
- Medical oncology
- Interior fit-out only: $340/sf

Northeast Suburban Cancer Center – 2005 costs
- Medical & radiation oncology
- New building: $435/sf

Southwest University Cancer Center – 2007 costs
- Medical oncology
- Interior fit-out only: $320/sf

**Median range (2007)**
- $210-360/sf fit-out only
- $250-480/sf new building

Pharmacy fit-out only: $850/sf
Linear accelerator only: $450/sf

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### Approach: Construction/Cost

The Advisory Board

- **National Median 2**
  - Cost per square foot: $240
  - Size: 64,000 square feet
  - Total cost (excluding land): $16.4 M

- ~$250 per sq. ft.
- ~$200 minimum per sq. ft.
- *highly variable by location*
Approach: Construction/Cost

The Advisory Board

Vaults
- $275–$350 per sq. ft.
- $25K+ for door
- 3,500–6,000 sq. ft. per vault

Infusion Center
- $200–$225 per sq. ft., often 1/4 of facility space
- 500 sq. ft. exam room
- 350–500 sq. ft. per infusion space, 350 sq. ft. additional for open bay layout

Clinical Office Space
- $180 per sq. ft.

Shell Space
- $60–$90 per sq. ft.

Approach

Model Cancer Center

Key Influencers

Planning/Development

Design

Results

Construction

Timeline

Construction/Costs

Patient & Staff Satisfaction

Post-Occupancy
### Approach: Post-Occupancy

**Case Study: Trinitas Comprehensive Cancer Center**

- 300-bed Community Hospital with religious affiliations
- Urban and inner city neighborhood
- Prominent location on campus and in city
- Award winning economic re-development organization
- Former location of parking lot/original hospital chapel

### Specific challenges:
- Changing use and program
- New management team
- Predetermined design/construction team
- Fixed exterior design
- Fast track construction with construction weariness and boom in area
- Preset budget and schedule
Approach: Post-Occupancy
Case Study: Trinitas Comprehensive Cancer Center

Market
- Competitive environment 3 (U1 R5)
- Patient expectation/quality 3 (U1 R5)

Physician Considerations
- Physician practice pattern 3 (U1 R5)
- Comprehensive center 3 (U2 R3)
- Number of physicians 4 (U1 R3)

Staff
- Recruitment 3 (U3 R2)
- Retention 5 (U1 R5)

Clinical Programs
- Psychosocial service/palliative care 3 (U2 R1)
- Research 2 (U1 R3)
- Integrative medicine 1 (U2 R3)
- Tumor site program 3 (U1 R2)

Technology
- Electronic medical records 1 (U1 R5)
- Computer savvy 1 (U3 R3)
- Patient tracking 3 (U3 R2)

Space/Regulation
- Expansion potential 4 (U1 R2)
- JCAHO/DOH/DCA/OSHPD 3 (U2 R3)
- Site considerations 2 (U1 R1)
Approach: Post-Occupancy
Questions To Be Answered by Users

- What works well? Why?
- What does not work? Why?
- What was missing?
- What would have made it easier?
- Recommendations for improvement
- What would we do again?

ANSWERS HAD TO BE OBJECTIVE

Approach: Post-Occupancy
Results Graded: Facility Design

- Patient spaces
- Staff spaces
- Healing environment
- Flow/processes
What kind of culture did we create?
- “A culture where patients feel cared for and about”

Is it the ideal place for patients to be treated and for physicians to treat patients?
- “Yes, given the space available”

Is it a healing environment?
- “Yes, but could have more water features, gardens etc., to add to the concept”
All areas would have liked more space

- Common theme included:
  - Bigger conference rooms
  - Ideally would be all on 1 floor – patients find multi-levels confusing
  - Staff lounge area too small (not enough seating those who need to eat at the same time – not enough for growth)
  - “We’ve already outgrown the space”

When asked: “What should have been eliminated to make more space for “x”?”

No one could identify what should have been left out or identify other priorities for space available
“A nice warm experience for patients and staff”
“Patients are very happy”
“Patients feel like they aren’t coming to a hospital or a clinical environment”
“Patients love it”
“Everyone was surprised and delighted with the way it turned out”

*From Post-Occupancy Staff Interviews*

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**Results Overall Consensus - Positive**

![Bar chart showing mean scores for facility cleanliness, finding way around facility with ease, waiting area comfort, changing room privacy, and Trinitas versus the PG Database.](chart_image)

*PG Database = All facilities in Press Ganey’s Outpatient Oncology Database*
Approach: Patient & Staff Satisfaction

Overall Consensus - Positive

- “The center is always very clean, it is very easy to go from one place to another it is always labeled, the privacy of the changing rooms is very good.”
- “I find it very relaxing even though circumstances dictate anxiety.”
- “It feels like someone cared about me - everything from the valet parking to the wireless internet”
- “The first time they told me about the Center, they said it was like a hotel and not a hospital. When I saw it, I found out that what they said was true. I felt like I was the only patient there with all the attention I received.”
- “Hospitality and attention to details are the hallmarks of the patient-centered care at Trinitas”
- “All the natural light makes such a difference, I don’t feel like I’m in a cancer center”

From Trinitas Cancer Center Press Ganey
Patient Satisfaction Data & Patient Interviews

Contact Us

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