How to Design a Better Cancer Care Facility

Design for Patients, the Care Team, and the Future

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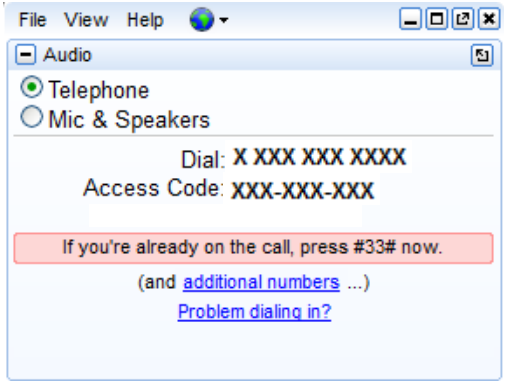

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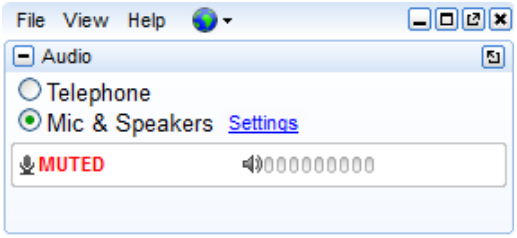

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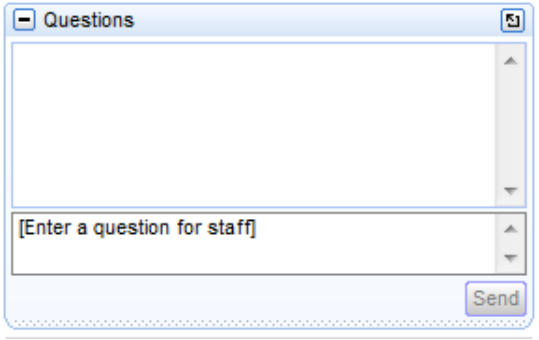

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Road Map

1 The Value of Good Design

2 Tactics to Build a Better Facility

3 Question and Answer

A Major Undertaking

Construction Is a Costly, Long-Term Investment

Time-Consuming

Multiple meetings with stakeholders throughout the construction process

Expensive

Commitment

Average time between renovations is **7-10 years**

$3M

Cost to renovate a 25,000 ft^2 cancer center

$5.5M

Cost to build a 25,000 ft^2 cancer center

Source: Design Cost Data (DCD), "The DCD Medical Square Foot Cost Guide", http://www.dcd.com/guides.html; Oncology Roundtable interviews and analysis.

Sooner or Later, Everyone Will Do It

Drivers Behind the Decision to Build Likely to Persist

Oncology Roundtable Members with Construction on The Mind

8% Oncology Roundtable members with construction project currently under way

10% Oncology Roundtable members with construction project projected within the next 3 years

1

Growing Volumes

Patient volumes are increasing and will continue to do so for the next 15 years

2

New Care Delivery Models

Move towards value-based payment models and population health is leading towards more community based care

3

Patient Consumerism

Patients are more sensitive to prices and expect more from their care experience

4

Emphasis on Multi-D Care

There is a greater emphasis on providing patients multidisciplinary care

Source: Oncology Roundtable interviews and analysis.

Facilities Have Major Impact on Patient Experience

Poor Design Results in Intimidating and Overwhelming Spaces

Problematic Cancer Center Features

- Large facility or campus
- Confusing terminology and signage
- Unwelcoming environment
- Lots of activities and noises
- Small clinical spaces

Common Patient Concerns

- How long will I need to get from the parking lot to my doctor's office?
- Can I get everywhere with my walker?
- What do I do if I get lost?
- Will I be able to rest during my infusion?
- Is there enough space for all of my guests and family members?

Source: Oncology Roundtable interviews and analysis.

Facilities Also Affect the Care Team

Design Features that Can Negatively Impact the Care Team

Design Feature	Potential Impact on Care Team
Large disjointed facility →	Makes communication and collaboration among care team members more difficult
Poor clinic layout →	• Complicates workflow • Increases clinician/staff footsteps unnecessarily
Isolated clinician workspaces →	Decreases opportunities for care team communication and collaboration
Insufficient space for staff and clinicians to rest and recuperate →	Can lead to stress and burnout

Source: Oncology Roundtable interviews and analysis.

How to Do It Better

Ten Tactics to Build a Better Facility

Improve Patient Experience

1 Build Strategically

1. Make an Informed Decision to Build or Renovate
2. Understand Stakeholder Preferences
3. Future-Proof Your Facility

2 Enhance Accessibility

4. Improve Wayfinding
5. Address Special Mobility Needs

3 Ensure Patient-Centered Visits

6. Create a Serene Environment
7. Enhance the Clinical Visit
8. Optimize the Infusion Center

4 Support the Care Team

9. Provide Multiple Opportunities for Collaboration and Communication
10. Provide Staff Relaxation Space

Source: Oncology Roundtable interviews and analysis.

Road Map

1 The Value of Good Design

2 Tactics to Build a Better Facility

3 Question and Answer

Advisory Board

The best practices are the ones that work for you.SM

Build Strategically

Divider Subtitle – Arial 11pt Regular

- Tactic 1: Make an Informed Decision to Build or Renovate
- Tactic 2: Understand Stakeholder Preferences
- Tactic 3: Future-Proof Your Facility

Building vs. Renovating

A Variety of Information Needed to Make an Informed Decision

Five Key Considerations that Guide Decision-Making

1. 
Location

2. 
Service Volume

3. 
Cost

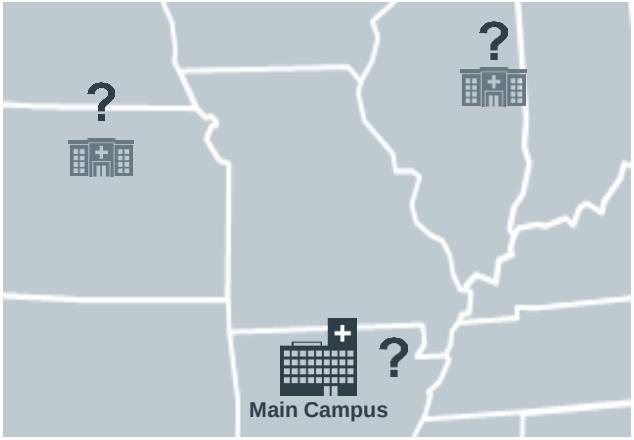
4. 
Timeliness

5. 
Design Control

Source: Oncology Roundtable interviews and analysis.

Identify a General Location for the Facility

Potential Locations for a New Facility



Things to Consider When Looking at Potential Locations

- Current and projected cancer incidence in the area
- Current and projected service utilization in the area
- Competitors in the area
- Local economic trends that could impact service utilization

Source: Oncology Roundtable interviews and analysis.

Choose the Right Location

The Guide Will Help You:

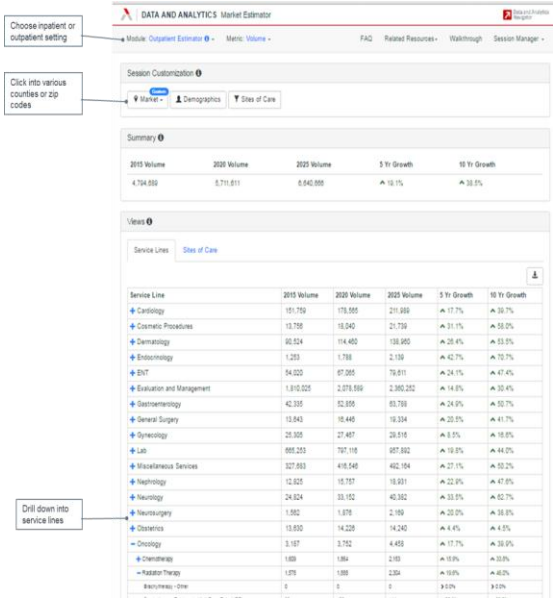
Step	Description	Ready-to-Use Resources
Identify patient origins	Understand current cancer cases volumes and 5- and 10-year projections for any zip code or county	Cancer Incidence Estimator
Evaluate services required	Understand the inpatient and outpatient services cancer patients are likely to use	Oncology Market Estimator
Assess the competition	Understand you market share capture and identify competitors	Oncology Medicare Market Share Assessment
Identify qualitative data to consider	Learn which stakeholder input and local information is important to consider	Cancer Patient Preferences Explorer

Source: Oncology Roundtable interviews and analysis.

Determine Space Needs

Estimate Service Volumes to Understand Space Needs

Oncology Market Estimator



Questions to Ask of the Data

- What outpatient and inpatient services do cancer patients in the area need? How many?
- How many will they need in 5-10 years?
- Which outpatient and inpatient services will grow most rapidly over the next 5-10 years?

Understand the Demand for Services

Oncology Market Estimator measures all services used by patients, not just cancer services

Source: Oncology Roundtable interviews and analysis.

Factor in Cost, Timeliness, and Control

Benefits and Drawbacks

Considerations	Build New	Renovate
Cost	Higher	Lower (sometimes)
Timeliness	Slower	Faster
Design Control (Customization)	More	Less

$122-???

Sq. Ft. cost to renovate a cancer center

$220-$430

Sq. Ft. cost to build a new cancer center

> "Because of the high cost of real estate in the area and our desire to stay on the hospital campus, we opted to renovate our cancer center."
>
> —Major Teaching Hospital in the Southeast

> "We initially planned to renovate but decided to build a new space when we realized renovating would be costly and design possibilities would be severely limited."
>
> —Comprehensive Cancer Center on the West Coast

1) Business versus health care occupancy requirements vary.

Source: Design Cost Data (DCD), "The DCD Medical Square Foot Cost Guide", http://www.dcd.com/guides.html; Oncology Roundtable interviews and analysis.

Identify Challenges in Existing Structures

Existing Spaces Can Be Costly and Difficult to Renovate

Space Configuration

Existing facility configuration, floor plan may not be readily adaptable for health care use, insufficient structural support

Clinical Infrastructure

Building lacks appropriate MEP[1] and HVAC[2] systems, medical gas, emergency power, and life safety features for health care

Regulatory Compliance

Careful consideration of state regulations governing facility licensure and occupancy type[3] required prior to space

RENOVATION CHALLENGES

Source: Facility Planning Forum, The Patient-Centered Ambulatory Facility, 2014, Advisory Board; Oncology Roundtable interviews and analysis.

Understand Stakeholder Preferences

Potential Questions for Stakeholders

Patients

- How does the present space meet your needs?
- Do you find it easy to get into and out of the center?
- What do you value most in a cancer program?
- Do you prefer to receive your infusion in a private or group space?

Staff and Clinicians

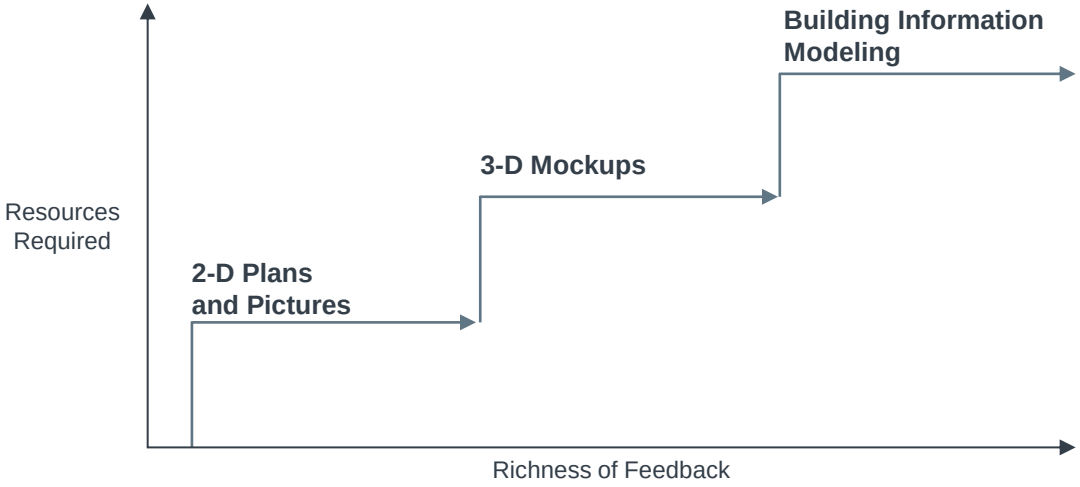
- Does the center layout inhibit workflow?
- What parts of the present center would you change?
- How can we better facilitate communication among the care team?
- Are you willing to share office space?

Source: Oncology Roundtable interviews and analysis.

Provide Stakeholders Something to React To

Trade-Offs Between Cost and Amount of Information

Spectrum of Design Testing Options



Source: Oncology Roundtable interviews and analysis.

Building Information Modeling

Building Information Modeling

- Building Information Modeling (BIM) systems produce digital representations of the physical and functional features of a facility; basic models involve three dimensions (height, width, and depth), advanced models include time and cost as a fourth and fifth dimension
- BIM models propagate individual model adjustments throughout the system allowing the user to track the impact of minor modifications throughout the structure
- Different types of BIM systems are available including parametric BIMs that allow multiple parameters such as revenue generating space, travel distance, and work-flow to be tracked as the model is adjusted
- BIM models store information about the facility that can be used to inform decision making throughput the facility's life-cycle
- According to the 2015 HFH/ASHE Survey of 496 hospital and health system executives, 32% of respondents use BIM for hospital capital planning, 54% for project management, and 45% for facilities operations

Source: ASHRAE, *An Introduction to Building Information Modeling: A Guide for ASHRAE Members*, 2009, http://cms.ashrae.biz/bim/pdf/BIMGuide_Rev_110309.pdf; Hoppszallern S, et al., "2015 Hospital Construction Survey", *Health facilities Management Magazine*, 2015, http://www.hfmmagazine.com/articles/1474-hospital-construction-survey-results-are-in; Oncology Roundtable interviews and analyses.

Experience the Space

Cardboard Mock-Up Revealed Throughput Challenges

Mock-Up of Proposed Reception Area at St. Charles Cancer Center

Reception Area at St. Charles Cancer Center

IMAGE CREDIT: ZGF ARCHITECTS LLP; © ECKERT & ECKERT

Source: ZGF Architects LLP; St. Charles Cancer Center, Bend, OR; Oncology Roundtable interviews and analysis.

Experience the Space (cont.)

Case in Brief: St. Charles Cancer Center and ZGF Architects LLP

- Part of the 226 bed St. Charles Medical Center located in Bend, Oregon
- ZGF is a design firm that focuses on architecture, interior design, and urban design
- Architects used cardboard mock-ups to identify throughput challenges with the proposed reception area design
- Feedback from patients and staff on the mockup led to relocation of the staircase and front desk

Source: ZGF Architects LLP; St. Charles Cancer Center, Bend, OR; Oncology Roundtable interviews and analysis.

Prepare for the Future

1

Build Shell Space

- Shell spaces can be built with no intended use or with an intended use at a later date

For example:
Build a vault for a second LINAC prior to purchasing; add an extra floor to outfit as needed in the future

2

Use an Easily Adaptable Layout

- Layout should allow spaces to be used for multiple purposes such as exam rooms, consult rooms, offices, or procedure rooms

For example:
Make offices half the size of exam and consult rooms so they can be easily converted

3

Build in Potentially Necessary Infrastructure

- Necessary infrastructure may include plumbing, HVAC, electricity, wireless technology

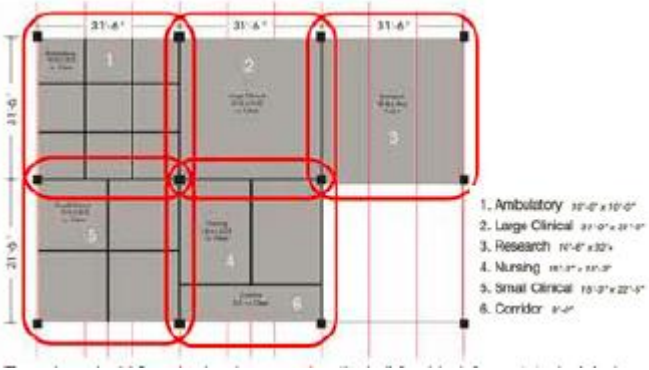
For example:
Make sure technology is in place to support Real Time Location System (RTLS)

Source: Oncology Roundtable interviews and analysis.

Standardize the Facility Layout

Universal Design Principles Help to Maximize Adaptability

CannonDesign's Universal Grid



Benefits of the Universal Grid

- Makes renovation less costly
- Enhances design freedom
- Makes building phase faster (reduces by 60% to 80% the 10 to 18 month time span from planning to groundbreaking)
- Eases the space repurposing process

> "The Universal Grid is a planning module that is 31'6" x 31'6" X 18" floor-to-floor, with all engineering systems integrate into this grid."
>
> *—Chip Berry, Principal CannonDesign*

Source: Berry C, "Meeting Future Needs", *Medical Construction, and Design*, January/February 2012, http://gvictrc.cannondesign.com/assets/pdf%20files/Medical_Const_and_Design-HVAC-KaleidaUBGVI-2012.pdf; Oncology Roundtable interviews and analysis.

Meeting Tomorrow's Needs in Today's Spaces

Tulip[1] Hospital Designs Spaces for Today and an Uncertain Tomorrow

Future-Proof Design Features

- Built 100-110 square foot spaces that can serve as consult or exam rooms
- Designed rooms so that a shared wall can be easily removed and 1.5 rooms can be combined to create a procedure room (for future use)
- Pre-emptively outfitted all spaces with electrical and plumbing infrastructure to accommodate all room uses

Case in Brief: Tulip Cancer Center

- Academic Medical Center located in the Northeast
- Planners recognized that cancer facility needs change over time; they wanted to create spaces that can be minimally altered to meet future need
- Designed rooms that support a number of configurations and have the infrastructure necessary to support different clinical uses

1) Pseudonym.

Source: Oncology Roundtable interviews and analysis.

Advisory Board

The best practices are the ones that work for you.℠

Enhance Accessibility

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- Tactic 4: Improve Wayfinding
- Tactic 5: Address Special Mobility Needs

Patients' First Steps

Poor Wayfinding Has Significant Impact on Patients and Providers

> "To be sick and dealing with cancer issues in a building that is not user friendly is your worst nightmare."
>
> *54-Year Old Melanoma Patient*

> "Rose Hill[1] is a very large and confusing campus to navigate. They have volunteer navigators at 2 key spots, but they need them at 10."
>
> *58-Year Old Neuroendocrine Pancreatic Cancer Patient*

Impact of Poor Wayfinding System

- Patient and visitor stress and frustration
- Decreased staff efficiency
- Decreased patient safety
- Patient disempowerment
- Higher health system costs

4,500 hours

Staff time spent annually redirecting lost patients, for a total cost of $220K at an academic medical center in the south

1) Pseudonym.

Source: Zimring C, *The Costs of Confusion: Non-Monetary and Monetary Costs of Emory University Hospital Wayfinding System,* Atlanta: Georgia Institute of Technology, 1990; Ahn, Joowon. "Wayfinding at the East Campus of Cayuga Medical Center in Ithaca, NY," Cornell, http://iwsp.human.cornell.edu/files/2013/09/Wayfinding-at-the-East-Campus-of-CMC-2hds8uc.pdf; Landro L, "A Cure for Hospital Design," *The Wall Street Journal*, February 3, 2014, http://www.wsj.com/articles/SB10001424052702303743604579355202979035492; Oncology Roundtable interviews and analysis.

Make Sure You Support Everyone

Different People Need Different Wayfinding Tools

Types of Tools

Cognitive

- Print-at-home directions
- Kiosks with on-screen or printable instructions

Social

- Volunteer escorts
- Concierge services

Visual

- Color-coded zones
- Landmarks

Verbal

- Front door greeter
- Kiosks with verbal instructions

Good wayfinding systems employ multiple types of tools to ensure the entire patient population is supported

Source: Devlin AS, "Wayfinding in Healthcare Facilities: Contributions from Environmental Psychology," *Behavioral Sciences*, 4, no. 4 (2014): 423-436; Huelat BJ, "Wayfinding: Design for Understanding," The Center for Health Design, https://www.healthdesign.org/chd/research/wayfinding-design-understanding; Zeit KD, Hospital Wayfinding and the Anxiety Factor," *Healthcare Design*, February 6, 2014, http://www.healthcaredesignmagazine.com/blogs/kristin-zeit/hospital-wayfinding-and-anxiety-factor; Oncology Roundtable interviews and analysis.

Help Them Find Their Way

Three Features of Effective Wayfinding Systems

Clear Signage

- Large, easy-to-read symbols or letters
- Simple lay-friendly terminology (e.g., “Ear, Nose, and Throat Center” instead of “Otolaryngology Center”)
- Languages relevant to the local population

Progressive Information Disclosure

- Bite-sized pieces of information
- Multiple points of support
- Information support from one decision point to the next

Highly-Trained Staff

- Provide a single path
- Use simple language
- Reference landmarks
- Offer maps and written directions

Source: Devlin AS, “Wayfinding in Healthcare Facilities: Contributions from Environmental Psychology,” *Behavioral Sciences*, 4, no. 4 (2014): 423-436; Huelat BJ, “Wayfinding: Design for Understanding,” The Center for Health Design, https://www.healthdesign.org/chd/research/wayfinding-design-understanding; Zeit KD, Hospital Wayfinding and the Anxiety Factor,” *Healthcare Design*, February 6, 2014, http://www.healthcaredesignmagazine.com/blogs/kristin-zeit/hospital-wayfinding-and-anxiety-factor; Oncology Roundtable interviews and analysis.

A Picture Is Worth a Thousand Words

Pictures and Color-Coding Are Low-Cost Ways to Improve Wayfinding

Hallway with Wayfinding Support

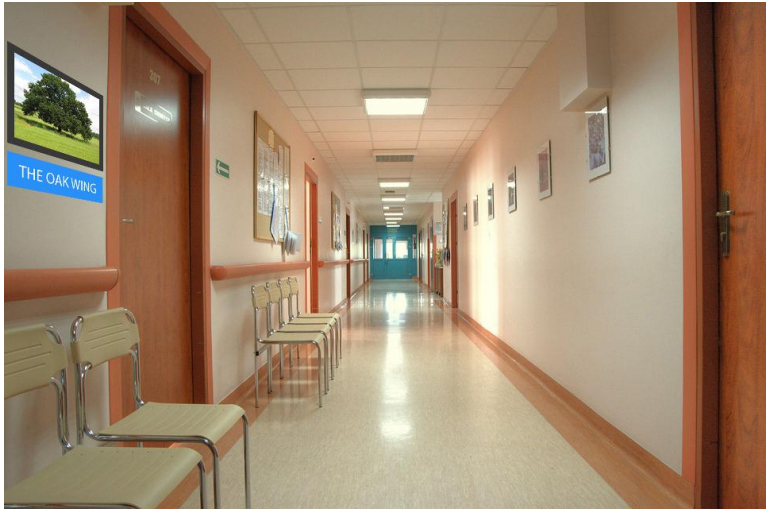


IMAGE CREDIT: PIXABAY.COM

Hallway Is:

1. **Color-Coded**
   For easy visual differentiation
2. **Themed**
   With nature pictures to help visual navigators
3. **Named**
   After a type of tree to be memorable

Source: Oncology Roundtable interviews and analysis.

Wayfinding in the Digital Age

Mayo Clinic Invests in a Mobile Application

Mayo Clinic Patient Application

Electronic Wayfinding Features

- Provides real-time, turn-by-turn navigation to facilities across Mayo clinic campus
- Offers directions within any building on campus with sophisticated interior mapping technology
- Works together with existing patient services, including a network of information desks

IMAGE CREDIT: MAYO

Technology in Brief: Mayo Clinic's Patient Application

- Free application with location-based navigation on smartphones and other devices, helping patients find their way to appointments
- Directs patients to and through facilities within Mayo Clinic campuses nationwide, including 16 million square feet and 59 different buildings

Source: The Patient-Centered Ambulatory Facility, Facility Planning Forum, The Advisory Board Company.

Tools to Develop Wayfinding Apps

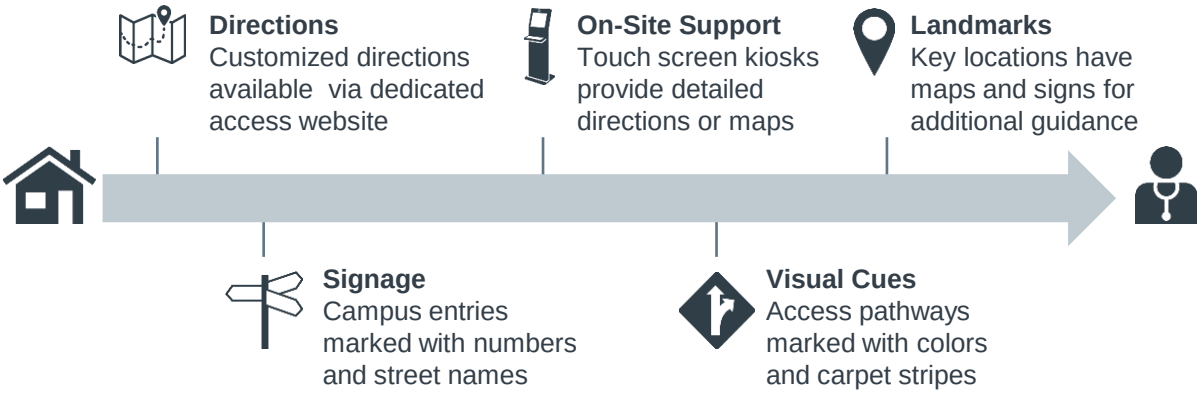
Company	Description	Technology Requirements	Additional Features
Wayfinding Pro https://www.wayfindingpro.com/	• Highly detailed, customizable map of your facility • Can be built in several hours	• Basic (i.e., PC, network connection)	• Can build in photos from your facility
Phunware http://www.phunware.com/platform/mapping/ http://www.phunware.com/platform/blue-dot/	• Highly detailed, customizable map of your facility • System can be upgraded with indoor positioning that allows users to track their location in real time	• Basic (i.e., PC, network connection) • Bluetooth LE (low energy) beacon technology	• System can be upgraded for indoor positioning • Company offers 90 day pilot
MobileSmith https://www.mobilesmith.com/wayfinding-app/	• Highly detailed map, customizable with indoor positioning that allows users to track their location in real time • Can be built in several weeks	• Basic (i.e., PC, network connection) • Bluetooth LE (low energy) beacon technology	• Ability to track time spent in specific locations • Ability to push content to users in specified locations
Wifarer http://www.wifarer.com/	• Highly detailed, customizable map with indoor positioning that allows users to track their location in real time	• Basic (i.e., PC, network connection) • Either WiFi or Bluetooth LE (low-energy) beacon technology	• Ability to push content to users in specified locations

Source: Oncology Roundtable interviews and analysis.

Follow the Yellow Brick Road

MD Anderson Provides Door-to-Door Guidance

Patient Wayfinding Support at MD Anderson



Source: "Wayfinding," MD Anderson, http://www.mdanderson.org/patient-and-cancer-information/guide-to-md-anderson/getting-here/wayfinding.html; Oncology Roundtable interviews and analysis.

Follow the Yellow Brick Road (cont.)

Case in Brief: The University of Texas MD Anderson Cancer Center

- 594-bed NCI-designated cancer center located in Houston, Texas
- Provides multiple wayfinding tools to guide patients and family members from the home to their visit
- Uses different types of tools throughout the system to ensure individuals with different cognitive abilities are supported
- Tools include customized web-accessible directions, numbered entryways and street signs, touch-screen kiosks, color-coded access pathways, and visual landmarks
- Directions and signage progressively discloses information to ensure manageable pieces of information

Source: "Wayfinding," MD Anderson, http://www.mdanderson.org/patient-and-cancer-information/guide-to-md-anderson/getting-here/wayfinding.html; Oncology Roundtable interviews and analysis.

Excellent Wayfinding Enables Self-Rooming

Features that Facilitate Self-Rooming

Wayfinding Tools

Verbal and printed directions, signage, and color-coding to allow patients with different cognitive styles to locate rooms

Communication System

System that enables front desk staff and medical assistants to identify room status (clean, occupied, etc.) without walking to front desk

Line of Sight

Facility layout that ensures registration staff can see patients in hallways

Benefits of Self-Rooming

- Increased patient satisfaction
- Enhanced clinician and staff satisfaction

Many Patients Prefer Self-Rooming

95% Percentage of patients from a pilot study that preferred self-rooming to traditional rooming

Source: Kamnetz S, et al., "Are Waiting Rooms Passe? A Pilot Study of Patient Self-rooming," *Journal of Ambulatory Care Management*, 38, no. 1 (2015): 25-28; Oncology Roundtable interviews and analysis.

Address Special Mobility Needs

What You Can Do to Help Patients

Challenges to Mobility

24% Percentage of adults 65 and older using a mobility device in 2011

9% Percentage of adults 65 and older using multiple mobility devices

 # 1 Fatigue is the most common side effect of cancer treatment

Opportunities to Help

Minimize Patient Steps

- Offer valet service
- Locate high-acuity patient spaces near entrance
- Provide wheelchair transport
- Provide chairs at reception

Use Appropriate Flooring Material

- Use non-slip flooring
- Avoid high-contrast geometric and graphic patterns

Source: Ulrich RS, "Effects of Healthcare Environmental Design on Medical Outcomes," In *Design and Health: Proceedings of the Second International Conference on Health and Design*, Stockholm, Sweden: Svensk Byggtjanst, 2001: 49-59; Gell NM, et al., "Mobility Device Use in Older Adults and Incidence of Falls and Worry About Falling," *Journal of the American Geriatrics Society* 63, no. 5 (2015): 853-859; Oncology Roundtable interviews and analysis.

Advisory Board

The best practices are the ones that work for you.SM

Ensure a Patient Centered Visit

Divider Subtitle – Arial 11pt Regular

- Tactic 6: Create a Serene Environment
- Tactic 7: Enhance the Clinic Visit
- Tactic 8: Optimize the Infusion Center

A Serene Place Is a Comfortable Place

Examples of Disruptive Design

Traffic Patterns
Clinician thoroughfares cut through patient spaces

Stressful Waiting Area
Waiting rooms can be hectic and uncomfortable for sick patients and those preferring privacy

Noisy Workspaces
Clinician and staff workspaces can be noisy

Three Methods to Create a More Peaceful Environment

Method 1:
Separate clinical workspaces from patient areas

Method 2:
Decentralize the waiting room

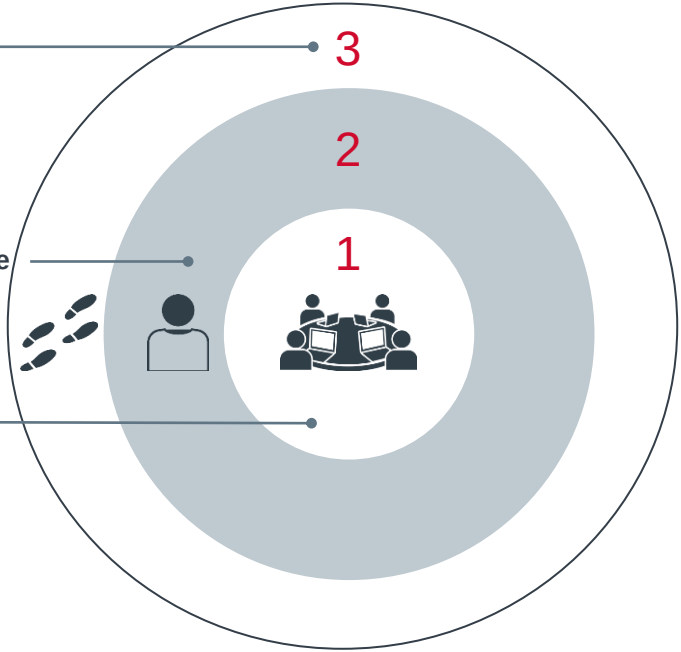
Method 3:
Use healing design elements

Source: Oncology Roundtable interviews and analysis.

Separate Spaces Facilitate Serenity

Dedicated Spaces Help Patients Feel Comfortable

Avera Cancer Institute's On Stage, Off Stage Layout



Hallway

Hallway and decentralized waiting area (on stage)

Clinical Visit Space

Consult and exam rooms

Core Space

Clinician and staff workspace (off stage)

Benefits of Separate Spaces

- Quieter hallways and waiting rooms
- Patients feel space is their own
- More patient privacy
- Facilitates HIPAA compliance

Source: Avera Cancer Institute, Sioux Falls, SD; Oncology Roundtable interviews and analysis.

Separate Spaces Facilitate Serenity (cont.)

Case in Brief: Avera Cancer Institute

- Four-clinic cancer center based in Sioux Falls, South Dakota
- Avera's emergency department and primary care center implemented on stage - off stage floorplans several years ago; the floorplans differ in detail but both consist of a core space surrounded by exam rooms
- Cancer program leaders worked with clinicians and architects to adapt the emergency department and primary care floorplans to best meet the needs of their physicians and staff
- Created three different variations of the core space; each core space has exam rooms with two doors so patients enter from the waiting area next to the room and physicians and staff enter from the core
  - Open: core houses workspace for physicians and staff along with supplies and equipment
  - Semi-private: core houses partitioned workspaces for staff and physicians; physicians have normal sized offices outside of the core space
  - Private: core houses small physician offices and staff workspace just outside the physician offices

Source: Avera Cancer Institute, Sioux Falls, SD; Oncology Roundtable interviews and analysis.

Alternative Workspace Layouts

Avera Cancer Institute Tailored Off Stage Space to Clinician Preferences

Core Spaces at Avera

The Open Office

Physicians and care teams share an open workspace

The Semi-Private Set-Up

Short partition walls separate care team workspaces and physicians have normal size offices outside of the core

(Tiny) Private Offices

Physicians have small private offices and their care team is located nearby

Source: Avera Cancer Institute, Sioux Falls, SD; Oncology Roundtable interviews and analysis.

A Peaceful Waiting Experience

Decentralized Waiting Rooms Can Enhance Patient Comfort

The Decentralized Waiting Process

Patient Entry → **Registration** → **Waiting Space**

Patient enters the facility and checks in at the front desk

Front desk staff directs patients to the waiting area located next to the room they will be seen in

Patients and caregivers wait in nearby chairs until invited in to the exam room by staff

Benefits of the Decentralized Waiting Room

1. Quieter waiting experience
2. Increased patient privacy
3. Decreased risk of infections

Source: Avera Cancer Institute, Sioux Falls, SD; Oncology Roundtable interviews and analysis.

Design for Patient Well-Being

Healing Design Can Increase Patient Serenity

95%

Percentage of patients who report a therapeutic benefit from being in a healing garden

Nature views and exposure to nature have been found to reduce stress

Hospital patients with nature views recover more quickly than those without

Healing Design Elements

Healing Gardens

A green space that provides staff and patients a place of refuge, promotes stress reduction, and provides a sense of well-being

Nature Views

Windows or skylights that offer views of the natural environment

Dynamic Design

Design features that engage patients and guests by continuously changing over time, being interactive, or facilitating multiple perspectives

Pieces of Nature

Objects such as plants, aquariums, and pictures of natural scenery

Source: Ulrich RS, "View Through a Window May Influence Recovery," *Science*, 224, no. 4647 (1984): 224-225; Marcus CC, Barnes M, *Gardens in Healthcare Facilities*, The Center for Health Design, 1995; Ulrich RS, "Effects of Healthcare Environmental Design on Medical Outcomes," In *Design and Health: Proceedings of the Second International Conference on Health and Design*, Stockholm, Sweden: Svensk Byggtjanst, 2001, 49-59; Ulrich, RS, "Effects of Gardens on Health Outcomes: Theory and Research," *Healing Gardens: Therapeutic Benefits and Design Recommendations*, 1999, 27-86; Park SH, Mattson RH, "Ornamental Indoor Plants in Hospital Rooms Enhanced Health Outcomes of Patients Recovering from Surgery," *The Journal of Alternative and Complementary Medicine,* 15, no. 9 (2009): 975-980; CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

The Healing Power of Nature

Natural Light and Nature Views Facilitate Wellbeing

Healing Garden at UW Cancer Center at ProHealth Care with Private Garden for Infusion Patients in Background behind Glass

IMAGE CREDIT: CANNONDESIGN

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

The Healing Power of Nature (cont.)

Case in Brief: UW Cancer Center at ProHealth Care and CannonDesign

- Outpatient cancer center located in Pewaukee, Wisconsin; onsite services include medical and radiation oncology, radiology, lab, pharmacy, and rehabilitation
- CannonDesign is a global design firm with 16 offices worldwide
- Healing design elements at the center include a healing garden, nature views from most areas within the clinic, interior construction using natural materials, and feature walls

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

The Healing Power of Nature (cont.)

Natural Light and Nature Views Facilitate Wellbeing

View From the Deck at UW Cancer Center at ProHealth Care

IMAGE CREDIT: CANNONDESIGN

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

Patient-Centered Clinical Visits

ThedaCare Identifies Three Key Components of a Patient-Centered Visit

Lean Design Team

- Lean-focused architecture firm
- Lean-focused construction firm
- Lean-trained internal staff

Factors Evaluated

Historical Visit Numbers

Information on new patient visits, average number of guests

Stakeholder Input

Information on patient, family member, clinician, and staff preferences and experiences

Space Priorities

1 **Right-Sized Exam Rooms**

Appropriate-sized rooms to accommodate patients, guests, and providers at different visits

2 **Appropriate Furniture and Equipment**

Exam rooms have technology and furniture that are space efficient and comfortable

3 **Minimized Patient Steps**

Services revolve around the patient

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

Patient-Centered Clinical Visits (cont.)

Case in Brief: ThedaCare

- Seven-hospital and multiple clinic community health system based in Appleton, Wisconsin
- ThedaCare used patient-centeredness as a guiding principle throughout the design and construction of new cancer center
- Different-sized exam rooms are used for different types of appointments and to meet diverse patient preferences
  - Large rooms (170 square feet) used for new patients, patients who bring multiple caregivers
  - Small rooms (135 square feet) used for follow-up visits
- The larger exams rooms have videoconferencing capabilities that allow virtual attendance by clinicians and family members
- Services come to the patient in a “hotel experience”; patients check in to the exam room, providers come to them, and staff check the patients out directly from the exam room
- Rooms are outfitted with furniture and technology that enhances communication and facilitates the care process; movable supply and tool carts are located in a nearby space to allow rooms to remain uncluttered; furniture tested by staff and patients before being purchased

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

Make Space for Patients and Guests

Patient Input and Past Visit Data Help Right-Size the Exam Room

Questions to Inform the Process

The Data-Driven Decision

Questions About Past Visits

- How many staff and clinicians participate in a new patient visit?
- How many staff are in the room at once?
- What is the ratio of new patient visits to established patient visits?

Questions for Patients

- How many guests would you like to accompany you for the first visit?
- How many guests would you like to accompany you for return visits?

Different-Sized Exam Rooms

Built two different sizes of exam rooms to accommodate diverse patient preferences regarding number of accompanying guests and ensure sufficient number of rooms for different types of visits

- 135 square feet rooms for established patients visits
- 170 square feet rooms used for first visits and patients with multiple guests

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

What's Inside Is Important

ThedaCare Maximized Stakeholder Input

Methods to Choose Furniture and Equipment

Surveys and Observations

Used surveys to identify what furniture and equipment was utilized by patients and staff in previous settings

- Selected shallow (eight inch) cabinets for above sink and counter because space not heavily used

Exam Room Mock-ups

Sought patient, staff, and physician input on mocked-up rooms with various furniture options

- Chose furniture patients found comfortable
- Dropped plan to use bullet table attached to wall because it inhibited communication
- Identified the value of light, movable furniture

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

Flexible Furnishings Improve Comfort and Usability

Examples of Furniture and Equipment in ThedaCare's Exam Rooms

High-Low Exam Tables

All exam tables are adjustable to allow easy access for patients with mobility challenges

Workstation on Wheels

Computer system with two 24-inch monitors located on a cart, and plugs into wall outlet

Movable Furniture

Folding chairs, exam stools, and lightweight tables can be easily moved to create space or reconfigure room layout

Video-conferencing Technology

Larger rooms have 40-inch wall monitors to videoconference with remote clinicians, family members

Supply Carts

Tools and equipment not necessary for every visit is located on a supply cart that easily moves in and out of the room

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

Keep the Patient at the Center

Minimize Patient Steps by Bringing Services to the Patient

Exam Visits at ThedaCare

Patient checks in at front-desk and is taken to an exam room

In the exam room, the following take place:

- Lab work
- Clinician visit
- Support service visits
- Check-out paperwork processed
- Follow-up appointments scheduled

Patient leaves the exam room and exits center

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

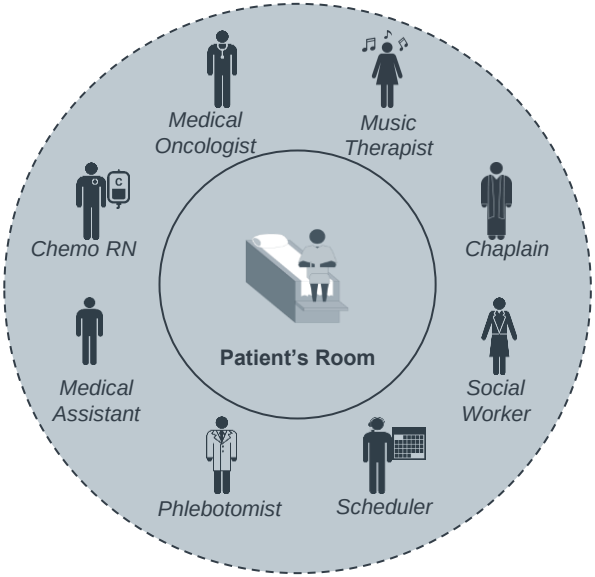
The Non-Moving Patient

Park Nicollet Offers a Patient-Centered Visit

Key Components of the System

- Patients remain in one room while staff and physicians come to them
- In-room services include oncology consult, blood draw, scheduling, and infusion
- The Patient Locator, an electronic medical record (EMR) add-on, indicates where the patient is in the care process, in real time
- Multipurpose patient chair accommodates both infusion and bone marrow biopsy

The Non-Moving Patient



Source: Redesigning Cancer Care Delivery for the Era of Accountability, Oncology Roundtable, Advisory Board.

The Non-Moving Patient (cont.)

Case in Brief: Park Nicollet Frauenshuh Cancer Center

- Outpatient cancer center located in St. Louis Park, Minnesota; member of Park Nicollet Health Services and Health Partners systems
- Began planning new Park Nicollet Frauenshuh Cancer Center facility in 2005; designed the facility with the patient perspective in mind; goal was to reduce non-value-added steps
- Opened new facility in 2009 with a “non-moving patient” care model; patient remains in one room while staff come to patient room to deliver care; multipurpose patient chair accommodates both infusion and bone marrow biopsy
- The patient locator, an EMR add-on, tracks the steps of the care process, notifies staff when the patient is ready for the next step, and enhances communication between providers

Source: Redesigning Cancer Care Delivery for the Era of Accountability, Oncology Roundtable, The Advisory Board Company.

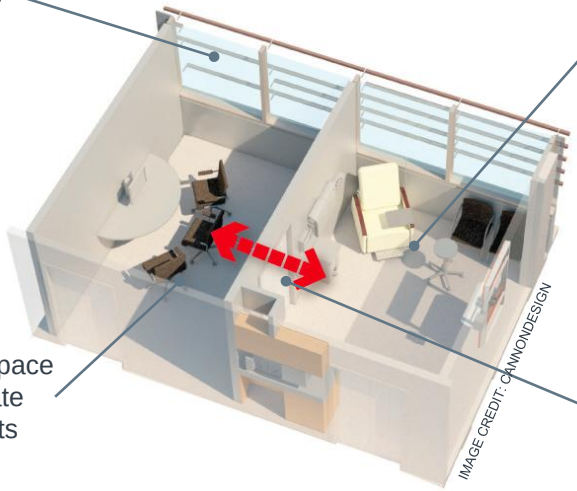
A Simple Solution to a Difficult Problem?

Adjoining Exam and Consult Rooms to Increase Patient Comfort

Schema of a Multidisciplinary Day Suite

All suites have windows, so patients have views and natural light

Exam room provides patients privacy for clinical exam component of the multidisciplinary visit while families stay in the consult room



Consult room allows space for families to participate in multidisciplinary visits

Soundproof adjoining door allows rooms to be used together for multidisciplinary visit and separately at other times

Source: CannonDesign, Grand Island, NY; Oncology Roundtable interviews and analysis.

A Simple Solution to a Difficult Problem? (cont.)

Innovation in Brief: CannonDesign's Multidisciplinary Day Suite

- CannonDesign is a global design firm with 16 offices worldwide
- Solicited input from patients during the design and construction of a facility
- Learned that some patients opted out of multidisciplinary visits because they found them to be exhausting
- Developed the "Multidisciplinary Day Suite" which consists of an adjoining exam and consultation space
  - Supports consecutive appointments with specialists and allows patient to stay in one place for a significant portion of their visit
  - Family can stay in the consult room while patient receives exam in adjoining space
  - Rooms can be used separately on regular clinic days
- CannonDesign considers this an "under development" innovation and is in the process of collecting data and feedback to continue to evolve the concept

Source: CannonDesign, Grand Island, NY; Oncology Roundtable interviews and analysis.

Improve Patient Satisfaction in the Infusion Center

Key Considerations for Infusion Center Design

Guest Comfort

- Sufficient space
- Comfortable seating

Patient Control

- Temperature
- Lighting
- Entertainment
- Noise

Patient Choice

- Room type
- Seating type

Source: Oncology Roundtable interviews and analysis.

Give Patients Control of Their Environment

ThedaCare Provides Patients Maximum Control in the Infusion Center

Infusion Center Patients Control…

Case in Brief: ThedaCare

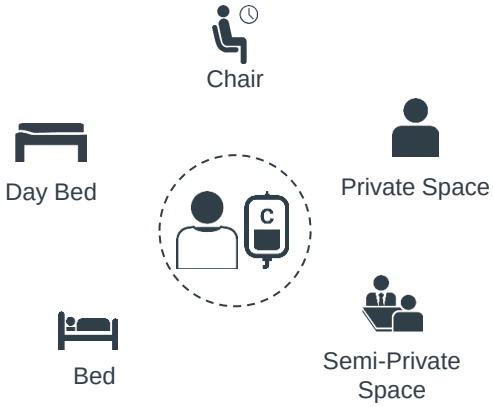
- Seven-hospital and multiple clinic community health system based in Appleton, Wisconsin
- ThedaCare used patient-centeredness as a guiding principle throughout the design and construction of new cancer center
- Infusion suite has 16 bays, 12 of which are private
- Patients can use an internal call system to contact a nurse for medical or other purposes, have the ability to control their immediate environment including the window shades, room temperature, entertainment, and infusion chair functions

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

Patients Like to Have Choices

Offer Patients Multiple Choices in the Infusion Center

Infusion Center Patients Choose…



Case in Brief: UW Cancer Center at ProHealth Care and CannonDesign

- Outpatient cancer center located in Pewaukee, Wisconsin; onsite services include medical and radiation oncology, radiology, lab, pharmacy, and rehabilitation
- CannonDesign is a global design firm with 16 offices worldwide
- Previous center was 100% private rooms; patient input revealed the importance of choice
- New center has 8 private bays and 17 infusion chairs in semi-private and private areas; patients can choose to sit in a chair, day bed or full bed

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

Evaluating a Daybed

Nurses and Patients Come to Consensus

Decision-Making Process at UW Cancer Center at ProHealth Care

Nurse Perspective

- Ergonomically problematic
- Unsafe to locate against a wall

No Daybed

Patient Perspective

- Comfortable
- Flexible
- Alternative to the recliner

Yes Daybed

Patients and nurses engage with designers, share opinions

Daybed that:

- Adjusts height for comfort and safety
- Is on wheels

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

Evaluating a Daybed (cont.)

Case in Brief: UW Cancer Center at ProHealth Care and CannonDesign

- Outpatient cancer center located in Pewaukee, Wisconsin; onsite services include medical and radiation oncology, radiology, lab, pharmacy, and rehabilitation
- Administrators at UW Cancer Center at ProHealth Care were interested in testing daybeds that CannonDesign had created for other cancer centers
- Prototype of daybed was constructed and installed in existing infusion area for patients and nurses to test
- Some nurses disliked the daybed because they thought it was ergonomically problematic and they had safety and patient access concerns; patients liked the daybed because it was comfortable and offered an alternative to the recliner
- Patient who had used the daybed overheard a nurse feedback session and offered her opinion on its value; nurses were impressed by importance of the design to patients
- CannonDesign worked with nurses and patients to design a daybed that met everyone's needs
- Lockable wheels added to daybed after installation
- Center now has six daybeds installed

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

Evaluating a Daybed (cont.)

Daybed Located in the Infusion Center at UW Cancer Center at ProHealth Care

IMAGE CREDIT: CRAIG DUGAN PHOTOGRAPHY

Source: CannonDesign, Grand Island, NY; UW Cancer Center at ProHealth Care, Waukesha, WI; Oncology Roundtable interviews and analysis.

Advisory Board

The best practices are the ones that work for you.℠

Support the Care Team

Divider Subtitle – Arial 11pt Regular

- Tactic 9: Provide Multiple Opportunities for Collaboration and Communication
- Tactic 10: Provide Staff Relaxation Space

ThedaCare Designed to Improve Teamwork

Provides Multiple Opportunities for Communication and Collaboration

Six Features to Enhance Collaboration and Communication

Team Workspaces
Community office spaces for managers and leadership

Quick-Chat Rooms
Drop-in space for 1-on-1 meetings

Meeting Spaces
Dedicated spaces throughout the facility for 6-8 person meetings

Huddle-Spaces
Stand-up desks with computers for quick collaborative work

Phone Booths
Phone rooms available for quick calls

Group Activity Room
Large room for lectures and other large group activities

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

ThedaCare Designed to Improve … (cont.)

Case in Brief: ThedaCare

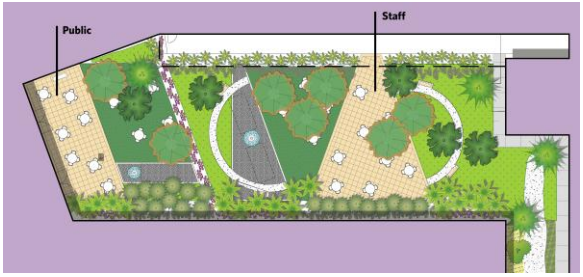
- Seven-hospital and multiple clinic community health system based in Appleton, Wisconsin
- Thedacare designed their new cancer center to conveniently meet staff needs and facilitate communication and collaboration among health care providers
- Design features include: 5 group rooms located in different areas throughout the center that can seat 6-8 people; community workspaces for managers and leadership; stand-up collaborative spaces located throughout the center's common areas that have a computer and can accommodate 2-4 people; team work rooms located at the end of each hallway; "drop-in" phone booths and 1-on-1 meeting spaces

Source: ThedaCare, Appleton, WI; Oncology Roundtable interviews and analysis.

An Oasis at the Office

Staff and Clinicians Need Space to Relax and Recuperate

Outdoor Staff Space at Miami Cancer Institute



Staff Spaces at Miami Cancer Institute

- Multiple staff break rooms located throughout the center
- Rooms furnished with comfortable chairs, entertainment system
- Located close to clinical work spaces
- Provide access to views and natural light

Case in Brief: Miami Cancer Institute and ZGF Architects LLP

- Miami Cancer Institute at Baptist Health South Florida is located in Miami, FL; center is slated to open in 2016
- ZGF is a design firm that focuses on architecture, interior design, and urban design
- Program leaders worked with ZGF to create staff spaces that would aid relaxation and recuperation; spaces include multiple break rooms and a staff only garden area

Source: ZGF Architects LLP; Miami Cancer Institute, Miami, FL; Oncology Roundtable interviews and analysis.

Key Takeaways: Design a Better Cancer Care Facility

1. **Taking a strategic approach to the construction project can save time and money.**
   A construction project is a major undertaking that needs to be approached strategically. Programs should make an informed decision to build or renovate, engage stakeholders to understand their preferences, and design for today's and tomorrow's needs.

2. **Better wayfinding improves access for all patients.**
   A poor wayfinding system can decrease patient and staff satisfaction, and create inefficiencies that impact your bottom line. Effective wayfinding systems reinforce information in various modalities, present directions in bite-sized pieces, and rely on well-trained staff as well as simple signs.

3. **Serene environments enhance the patient experience.**
   Cancer is an overwhelming diagnosis, and treatment is often intense. Cancer centers can improve patients' feeling of well-being by separating workspaces from patient spaces, offering decentralized waiting options, and drawing upon healing design elements.

4. **Patient-centered clinical visits maximize patient comfort.**
   Patients spend a significant amount of time in the medical oncology clinic and infusion center. To maximize patient comfort, cancer centers should provide appropriately sized clinical spaces, use comfortable furniture, and minimize how far patients have to move during appointments.

5. **Facilities designed to support the care team improve communication and collaboration.**
   To provide an optimal care experience, physicians and staff need to communicate and collaborate. Cancer centers can support the care team by ensuring staff and clinicians have multiple opportunities for communication as well as spaces to relax and recuperate.

Source: Oncology Roundtable interviews and analysis.

Road Map

1 The Value of Good Design

2 Tactics to Build a Better Facility

3 Question and Answer