

Innovative Infusion Design

Integrating Human Centricity in Cancer Care



Kahler Slater



Transforming Cancer Care Through Innovative Design

Prioritizing Patient Experience



The future of cancer care is evolving rapidly, with a focus on personalized treatments, transparency, and chronic condition management. Advances in early detection and molecular, genetic, and immuno-directed therapies are leading to increasingly precise treatments. Enhanced surveillance, symptom management, and coordination with primary care are becoming integral to managing cancer as a chronic condition. Prioritizing health equity and addressing social health determinants ensure a human-centered approach to care. As cancer treatment advances, it is essential that care spaces facilitate transformative care.

Human-Centered Design

Recent innovations in infusion centers highlight the importance of designing HEALING environments. A holistic design approach addresses the physical, emotional, and psychological needs of patients and families, as well as supportive environments for staff and providers.

Designing to Empower | Comfort & Control

Designing with Empathy | Biophilia, Joy & Color

Designing for Wellbeing | Views, Light & Nature





Core Curriculum
for Oncology Nursing



Designing to Empower

Comfort & Control

Patient-Caregiver Relationship

A human-centered approach to clinical planning directly impacts patient and staff experience. Research suggests that the quality of patient-caregiver relationships significantly influences patients' overall satisfaction with their treatment process. This relationship can be enhanced through thoughtful treatment space design. For example, an embedded pharmacy can improve medication safety, staff efficiency, and staff satisfaction through improved control and proximity. In turn, studies show that interacting with engaged and satisfied staff can significantly improve patient experience scores.

Ergonomic Seating

Comfortable seating designed to reduce stress during long treatment sessions can be critical to patient's comfort. Furniture that supports a custom posture, such as recliners or footstools, can help ease a patient's discomfort during extended periods of sitting.



Columbia St. Mary's

Private Bays, Communal Lounges and Even Outdoor Infusion

Patient choice offers a sense of control and customization for individuals' evolving needs. Design can create opportunities for patients to choose their experience depending on whether they feel well enough to be more social and interactive or would prefer privacy and solace throughout their treatment. Individual bays can both offer solitude and enable a family member to sit nearby and interact with the patient. Communal bays bring patients together to socialize in a small group, which creates opportunities for friendships to form through the cancer journey.

Curated Interior Environment

A sense of control over lighting, acoustics, and privacy helps patients feel less vulnerable. Customized lighting, entertainment options, temperature controls, and enclosures can assist in patients' curating their own experience as their needs and preferences evolve throughout their treatment journey.



Northwest Wisconsin Cancer Center of Tamarack Health
Ashland Medical Center | In collaboration with Essentia Health

Designing with Empathy

Biophilia, Joy, Senses & Color

Empathetic design transcends the patient and family's physical needs to embrace emotional and psychological comfort through deep understanding. By integrating empathy into the design process, we uncover the "why" underlying the difficulties people face, their needs, and the ways in which they interact with their environment, to develop a shared understanding of what could improve the human experience.

Biophilia

The beauty and intricacy of nature provide a welcome distraction and sense of peace during treatment, promoting healing and reducing stress. Studies show that biophilic design can promote faster recovery times, reduced pain levels, and lower patient mortality rates in cancer care. Healthcare providers in biophilic environments report lower stress levels and higher job satisfaction.



St. Mary's Hospital



Joy

Ingrid Fetell Lee's principles of the aesthetics of joy can be effectively applied to cancer center design to create environments that promote healing and well-being.

Freedom: Design spaces that offer patients a sense of autonomy and choice, such as areas where they can move freely or personalize their surroundings.

Harmony: Create a balanced and cohesive environment using natural materials, soothing colors, and harmonious patterns. This can help reduce stress and promote relaxation.

Surprise: Include unexpected elements that delight and surprise, such as hidden artwork or unique architectural features. These can provide moments of joy and distraction.

Magic: Incorporate elements that feel magical or enchanting, like soft lighting, reflective surfaces, or dynamic installations. These can create a sense of wonder and escape.

Renewal: Create spaces that promote rejuvenation and healing, such as quiet rooms, meditation areas, or spaces with calming natural elements

ENERGY

*Vibrant color
and light*

SURPRISE

*Contrast and
whimsy*

ABUNDANCE

*Multiplicity
and variety*

TRANSCENDENCE

*Elevation and
lightness*

FREEDOM

*Nature, wildness
and open space*

MAGIC

*Invisible forces
and illusions*

HARMONY

*Balance, symmetry
and flow*

CELEBRATION

*Synchrony, sparkle
and bursting shapes*

PLAY

*Circles, spheres,
and bubbly forms*

RENEWAL

*Blossoming, expansion
and organic curves*

Source: Ingrid Fetell Lee's "Aesthetics of Joy"



Engaging Our Senses

The feelings a cancer patient experiences are intense, complex, and unique to each person. One feeling people often have in common: the feeling of loss of control.

Incorporating multisensory elements that allow patients to choose from a selection of soothing music and aromatherapy to enhance their treatment experience can ease their anxiety and give them back a sense of control.

However, overstimulation can have negative effects. Acoustics play a key role in infusion spaces. A quiet and serene environment can promote healing by reducing stress and anxiety among patients, and by improving staff communication and overall efficiency.

Color

Color theory is a framework that we use to understand how colors interact, how they can be combined, and the effects they have on perception and emotions. Color theory plays a crucial role in the design of cancer centers, influencing both the aesthetic appeal and the psychological wellbeing of patients and staff.

Wisdom Security Trust Integrity Calm	Passion Energy Power Urgency Excitement	Sensitivity Caring Fun Moving Love
Growth Freshness Balance Health Safety Youth	Enthusiasm Creativity Action Playfulness Excitement	Purity Innocence Peace Balance Timelessness
Royalty Power Creativity Spirituality Wisdom	Joy Attention Freshness Youth Optimism	Boldness Classic Power Elegance Stable

Ingrid Fetell Lee's book "Joyful: The Surprising Power of Ordinary Things to Create Extraordinary Happiness" focuses on intentionality to create joy. Developing a thoughtful, intentional color palette that molds the right experience for patients, families, and staff is imperative in a space as sensitive as a cancer center.

Color can alert. It can soothe. It can excite. It can heal. Color can also represent a brand: a signature experience. What feeling(s) do you seek to evoke?

As the German painter Johannes Itten once said, "Color is life; for a world without colors appears to us as dead." The right pops of color will be the right energy to a space—and impact the people in them in the right ways.

Designing for Wellbeing

Views, Light & Nature

Views

The exterior design for infusion spaces requires a careful balance of views to outside with patient privacy and comfort.

Access to views helps ease stress and creates a visual distraction for patients by connecting them to the outside world, particularly during long treatments. However, direct proximity to windows can make patients feel exposed. Locating circulation routes along the building perimeter and shifting treatment spaces inboard slightly can improve patient comfort.

Light & Nature

Studies have shown that exposure to natural light can lead to better patient outcomes, including faster recovery times and reduced need for pain medication. It can also improve mood and reduce stress, contributing to a more positive patient experience.

Direct access to natural surroundings, like roof gardens, can enhance the healing process by creating a more serene and comforting atmosphere. Some facilities are incorporating outdoor infusion spaces to elevate this option for patients.

These innovations reflect a broader trend towards more nuanced and patient-focused approaches in healthcare, aiming to improve both the physical and emotional well-being of patients undergoing infusion therapy. Designing these spaces with a focus on privacy, connection to nature, and personalized control can significantly enhance patients' cancer journey.







Northwest Wisconsin Cancer Center of Tamarack Health
Ashland Medical Center | In collaboration with Essentia Health



Carle Danville Medical Office Center

Infusion Environments

Private Infusion Rooms

Private Infusion Rooms are individual rooms designed to provide maximum privacy and comfort for patients. These spaces are ideal for patients who prefer solitude or need a quiet environment. Northwest Wisconsin Cancer Center offers private infusion bays with space for a family member, customizable lighting and entertainment, and views of nature.

Semi-Private Infusion Bays

Semi-Private Infusion bays are partially enclosed, often with three walls and a curtain for additional privacy. They balance privacy with the ability to interact with healthcare providers and other patients. The infusion center at the National University Hospital Medical Center in Singapore features pods of semi-private bays with unobstructed views of nature, flexible furniture positioning and direct visibility for staff.

Open Infusion Areas

Open Infusion Areas are open spaces with multiple infusion chairs arranged to allow for social interaction or some privacy with chair positioning and furniture dividers. The open infusion areas are more compact, allowing staff to work efficiently and in close proximity to all patients. Carle at the Riverfront provides open infusion space with 4th floor views of the walking trail and woods along the river.



at the Riverfront



National University Hospital
Medical Center and Cancer Institute of Singapore

Outdoor Infusion Space

Outdoor Infusion Spaces are treatment areas located outdoors or with direct access to outdoor spaces. They incorporate natural elements like landscape and water features and of course, fresh air into the treatment environment. Outdoor access to nature can provide a serene and comforting atmosphere, which can enhance the healing process. Exposure to natural light and fresh air can improve mood and reduce stress. The National Cancer Center in Singapore has an outdoor roof garden adjacent to the chemotherapy infusion area, offering a tranquil setting for patients and families.

Communal Lounges

Communal Lounges are shared spaces where patients can receive treatment in a more social environment that is more conducive to group sessions and activities. They often positioned in a way that provides some acoustic separation from the private and open bays and include seating that is easily rearranged, game tables or side tables, and areas for family members. Columbia St. Mary's communal infusion bays support patient interaction and offer views of Lake Michigan.

According to a post occupancy evaluation done in 2024, "the pod design (versus open bay or semi-private bays layout) allowed for better audio and visual privacy for patients, provided a higher amount of worksurface and availability of workstations, reduced noise levels, and enhanced nurse concentration at workstations.

Source: Jalalianhosseini M, Freihoefer K, Ochsner A, Doyle N, Bunker-Hellmich LA, Rich R, Haunfelder R. Design of a Cancer Infusion Center: Results from a Pre- and Post-Occupancy Evaluation. HERD. 2025 Jan;18(1):41-58. doi: 10.1177/19375867241280731.



National University Hospital
Medical Center and Cancer Institute of Singapore

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Contact

For further information, please contact:

Melinda Pogwizd, AIA
Design Leader, Associate Principal
mpogwizd@kahlerslater.com

About Kahler Slater

Kahler Slater is a team of architects, interior designers, environmental brand experts, and strategic advisors who enrich life through the power of design. By aligning design with strategy, they deliver meaningful experiences through creativity, collaboration, and expertise. Their market specializations include civic, cultural, healthcare, higher education, corporate workplace, multifamily residential, hospitality, sports, recreation, and wellness sectors. Kahler Slater operates offices in Milwaukee, Madison, Chicago, Richmond, Charlotte, and Singapore.