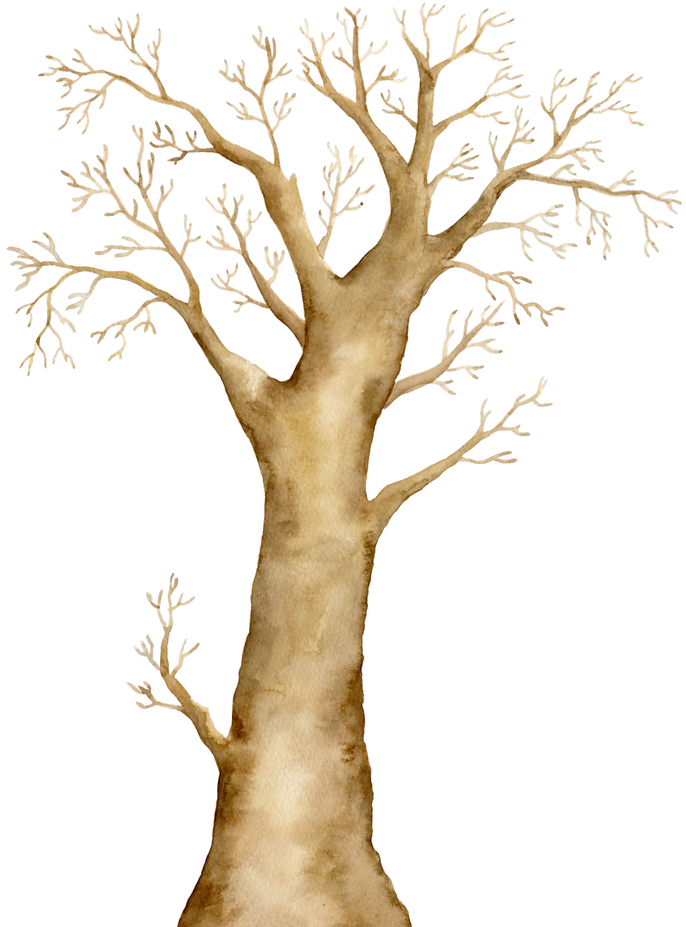
ONCOLOGY CENTER:
healing through
ARCHITECTURE

STINA OSTLIE

GRADUATE STUDENT
NORTH DAKOTA STATE UNIVERSITY
STINA.OSTLIE@NDSU.EDU
DR. GANAPATHY MAHALINGAM, PH.D., PROFESSOR

"Architects have to dream, we have to search for our Atlantises, to be explorers, adventurers, and yet to build responsibly and well."
-Renzo Piano



INTRODUCTION

Designers play an important and specific role in the design of health-related facilities. Specifically, for diseases such as cancer which has its own criteria within the field of health care design. Besides the physical equipment and correlating spaces required, there are psychological, emotional, and philosophical requirements. Designing environments for the care and treatment of people with cancer requires a holistic and sustainable approach, encompassing empathy, operational knowledge, and creative design thinking from the architects, interior designers, engineers, and client team (Schroer, 2014). Cancer is one of the most frightening and stress-inducing diagnoses a person can receive. By providing a space that can help in even the slightest would be beneficial to people battling cancer.

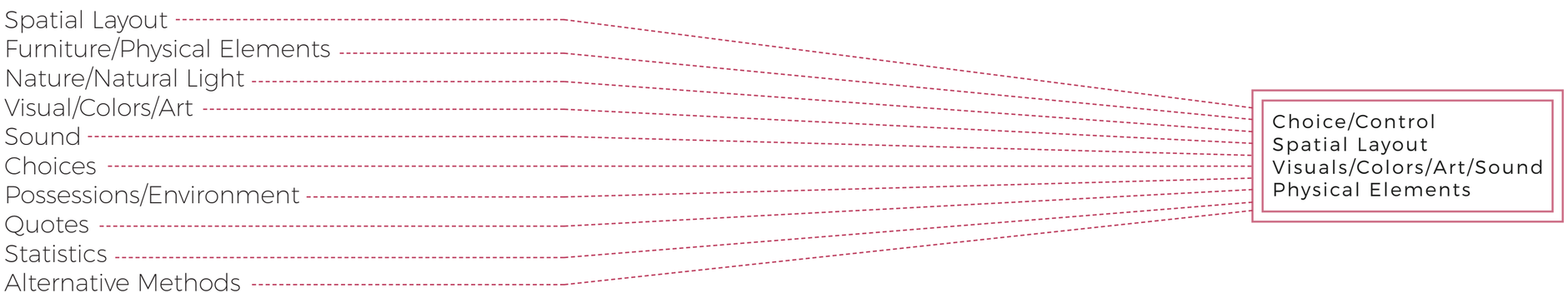
10 Original Catagories

How does one find the correct design elements to support the ambitious thought that architecture, space and the environment can help patients with cancer heal? It seemed daunting at first, but with more research into various articles, a pattern began to form. By reading through articles and highlighting the important bits, categories began to emerge.

4 Condensed Catagories

Eventually, these ten categories were narrowed down to four. By combining a few, the amount of research in each category was kept consistent. The final categories were: choice/control, spatial layout, visuals/colors/art/sound, and physical elements. These main four were then divided into subcategories. Choice and control were split into center focused and patient focused.

Visual/colors/art/sound were separated into desired emotional feeling, texture/naturals, and color schemes. Furniture/physical elements were put into small and large elements. Finally, spatial layout was split into design elements, architectural elements, additional services, and movement/ configuration.



1 Choice and Control

» Center Focused
» Patient Focused

2 Visual, Arts, Colors, Sound

» Desired Emotional Feeling
» Textures, Naturals
» Color Schemes

3 Furniture, Physical Elements

» Small Elements
» Large Elements

4 Spacial Layout

» Design Elements
» Architectural Elements
» Additonal Services
» Movement, Configuration

Maggie Centers

One of the most helpful discoveries was the Maggie Centers scattered throughout Europe. They are the perfect example of a beautifully designed space for patients with cancer. They were envisioned and planned by writer and designer Maggie Keswick Jencks in 1993 in Scotland. Maggie was diagnosed with cancer and there wasn't much hope for recovery. During her exhausting and draining trips to the hospital to receive chemotherapy infusions, she started thinking about how the noisy thoughtless space with its plethora of fluorescents could be transformed into a space that was quiet, private and filled with natural light. Wouldn't that be a better place to await results, receive treatment, or just contemplate one's situation?

If this bad design could have such a negative effect of demoralizing patients, could it not go the other way around and prove to be restorative? With her husband Charles Jencks, an architectural historian and theorist, they drew up a blueprint of a cancer care space that was inviting, warm, contemplative, and healing. The first Maggie Center opened in Edinburgh in 1996. Since then, it has expanded to 17 buildings with some being designed by celebrated architects such as Richard Rogers, Frank Gehry, and Zaha Hadid.

1. CHOICE & CONTROL

Exploring diseases such as cancer result in uncertainties. Some of these uncertainties are a disruption of normalcy and daily life, and a loss of the ability to even trust your own body. That is why the ideas of choice and control are so important.

"A sense of control is important because cancer takes away your control," was stated by a patient in a focus-group discussion at the Todd Cancer Institute. (Wang et al., 2011 pg. 69).

Allowing patients a choice to screen their treatment environments may psychologically foster a sense of control and help patients feel satisfied, comforted and hopeful (Wang et al., 2011).

Healing environments are complex relations between practices, space and care, where recognition of the individual needs, values and experiences of the patient are key to developing the environment to support the patient well-being (Høybye, 2013)

Patient needs	Design strategies to help fulfill the needs	Significance identified by POE	Methodology
Choice & Control	Providing multiple types of treatment environment to allow choice	Having a desired treatment space in terms of type was positively related to patient satisfaction, comfort and hope	Survey data, ANOVA
	Providing screens in each treatment station to facilitate control	27 out of 165 patients used their retractable screens	Observation
	Reducing the distances between places that patients need to travel	Wayfinding** and distances** were related to patient stress, comfort, satisfaction and hope	Survey data, ANOVA
	Differentiating treatment pods to improve legibility		
	Providing spaces for information desks and graphic signage		
	Multiple HVAC control zones	n/a	
	Providing comfortable recliners	Recliner comfort* was positively related to patient satisfaction	Survey data, Regression

(Wang et al., 2011 pg. 71)

Choice & Control

OPEN

SEMI-PRIVATE

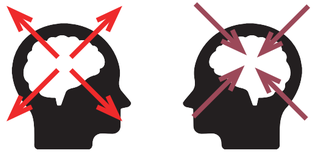
PRIVATE

Fg. 1

It was found that there are three types of treatment settings: private treatment rooms, semi-open areas (defined as treatment areas with other infusion patients and retractable screens or curtains), and open areas with other patients receiving infusion treatments. (Wang et al., 2011).

Light Control Temperature Control Air Flow

The top three priorities that patients considered the most important were temperature, light, and sound control. These elements can easily be incorporated into the design of an infusion site. There could be multiple heating, ventilation, and air conditioning (HVAC) control zones, individual radiator heaters, and heated seat controls (Wang et al., 2011 pg. 69).



Introvert vs. Extrovert

2. Visual, Arts, Colors, Sound

Color schemes and the interior design of the space can make a world of difference and provide a welcome distraction for patients that are waiting for diagnoses or chemo sessions. Colors have an impact on people's emotions. For instance, colors and lighting can help to change perception of space, alter a patient's emotional state and enhance staff productivity.

Generally, people feel more secure in spaces with warm colors. Cooler colors give the perception of a more open space and are recommended in areas with limited access to natural light or in small spaces with low ceilings (Interior designs for cancer care pg. 7).

Lighting is also another important feature that must be considered. Designers should choose the right light temperature to complement the color scheme — cool colors are enhanced by cool light temperatures and warm colors are enhanced by warmer color temperatures. Light levels should be high in work areas and lower in lounges and other relaxing rooms. Cancer patients are sensitive to light so nondirect light sources with adjustable levels are recommended in patient areas (Itani, 2015 pg. 7).

Fg. 2

Quiet

Music

Noise Control

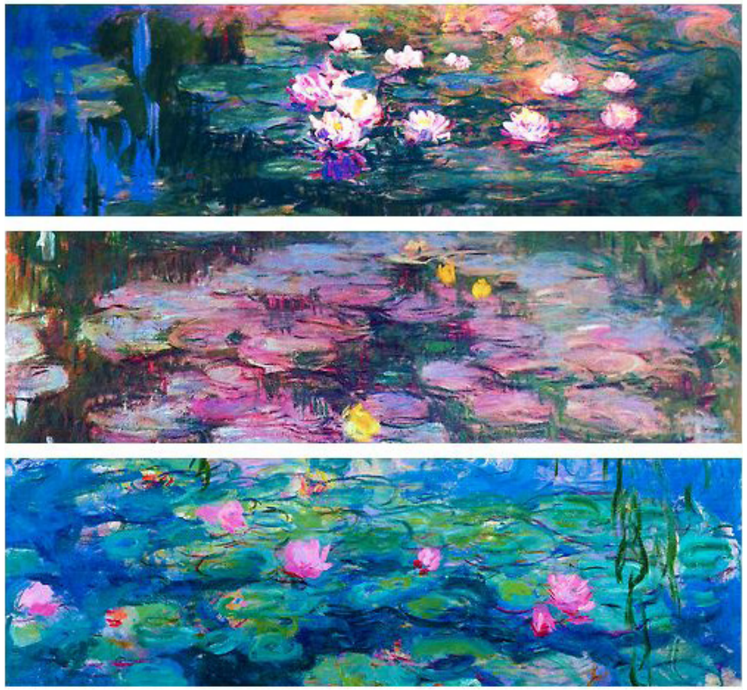
Sound also plays a big role in the comfort of patients. Given the high levels of stress that patients and their families are already experiencing, they do not need the aural and visual clutter that is usually prevalent in medical facilities (Eastman, 2003 pg 2/262).

When selecting art for cancer facilities, designers should consider the interpretation of subject matter from the patient's perspective. Art that depicts nature is generally considered safe, but nature that features fallen leaves, dark subdued colors or freezing temperatures can have negative effects (Itani, 2015 pg. 7). Elaborate artwork has become a staple in cancer center lobbies because of the positive effect it has on a patient's experience (Itani, 2015 pg. 2). The incorporation of artwork, plants and even natural finishes, or finishes with an organic feel and texture, reminds patients and family members of the wonderful possibilities of life and gives them something to contemplate (Eastman, 2003 pg 2/262).

Nature Natural Light Artwork Landscape

Visual, Arts, Colors, Sound

"LET ARCHITECTS SING OF AESTHETICS THAT BRING RICH CLIENTS IN HORDES TO THEIR KNEES; JUST GIVE ME A HOME, IN A GREAT CIRCLE DOME WHERE STRESSES AND STRAINS ARE AT EASE."
– R. BUCKMINSTER FULLER



Fg. 3 Claude Monet - Water Lilies

3. Furniture, Physical Elements

The materials and furniture that are chosen for a space are selected by looking at the clientele. In this case, the client's need a space that is relaxing and calming but practical at the same time.

Fg. 4

Positive distractions	Selecting appropriate building orientations	Window view** was associated with patient privacy, stress, comfort, satisfaction and hope	Survey data, ANOVA
	Developing a floor plan with multiple edges for windows to the outside		
	Appropriately placing windows		
	Developing a roof garden		
	Providing appropriate artwork	1 of 148 patients watched artwork in observation	Observation
	Providing areas for book and magazine reading	35 of 148 patients read during observation	
	Providing recliner with tablet arm	89 of 106 patients used their tablet arms	
	Providing wireless internet access	9 of 148 patients used their computers	
	Providing spaces for personal T.V.	56 of 146 patients watched their T.V.	
	Providing spaces for food/drink storage	74 of 137 patients drank and 10 of 141 ate during observation	
	Providing spaces for social interaction	57 of 88 patients interacted with guests and 2 of 98 patients interacted with each other during observation.	

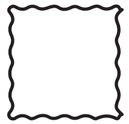
(Wang et al., 2011 pg. 71)

Furniture, Physical Elements

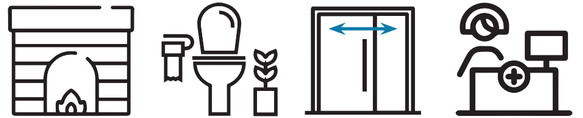
Besides comfortable seating, interior design strategies included: providing appropriate artwork, developing areas for book/magazine reading, providing patient recliners with tablet arms, providing a wireless internet connection, providing spaces for personal television, and providing food/drink and personal storage spaces (Wang et al., 2011 pg. 70).

Carpeted flooring is comfortable and inviting, but it can be hard for maintenance and wheelchair navigation. Carpet should only be used in the sitting area, and hard flooring should be used for the passages (Itani, 2015 pg. 2).

Wood Floor


Carpet

Fg. 5



- creating a lounge area with a faux fireplace adjacent to the nurse station
- distributing service areas including nurse stations, nourishment stations and patient toilet rooms to reduce the distances that patients need to travel
- providing retractable screens in each semi-open treatment station

(Wang et al., 2011 pg. 70).

4. Spatial Layout

The layout of a cancer center must be made to flow easily for the patient with minimal walking distance. The organization of the building itself should promote ease of use by the patient. The entrance should be obvious, welcoming, and not intimidating. The layout should be clear and the building as light as possible. (Annemans et al., 2012 pg. 3).

For this very stressful disease, the environment has an important role to play in attracting patients and in supporting their treatment (Eastman, 2003 pg. 9/269). The amount of time that a patient spends in an infusion chair can vary but, chances are, that it adds up to be a lot of time. Having a nice view out a window can help destress the patient and take their mind off their worries. (Wang et al., 2011 pg. 70).

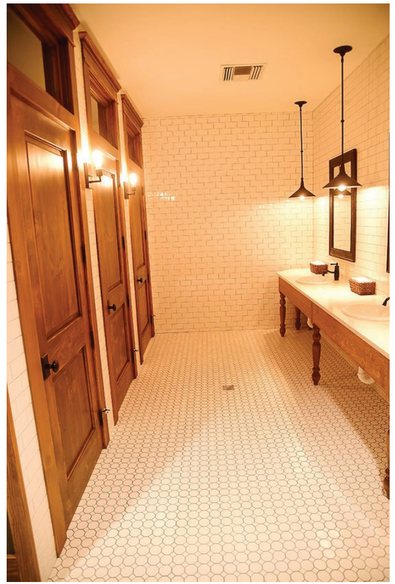
The architectural strategies focused on developing quality window views are: selecting appropriate building orientation to invite daylight and active views into the interior; developing a multiple-edge floor plan to increase opportunities to open windows to the outside; appropriately placing windows for quality views; and creating a garden adjacent to the building for visual access to nature (Wang et al., 2011 pg. 70).

Fg. 6

"Long corridors present a challenge to fatigued patients. When travel distances cannot be made shorter, the perception of a shorter corridor through floor patterns, wall finishes and ceiling design can be psychologically positive. **Curved walls** should be considered because corridors appear shorter if they have no visible end. They also appear more private and not as busy." (Itani, 2015 pg. 1-5).

Spatial Layout

The lavatories should not be all in a row with gasps under the doors; they should be private enough to cry in (Annemans et al., 2012 pg. 3).



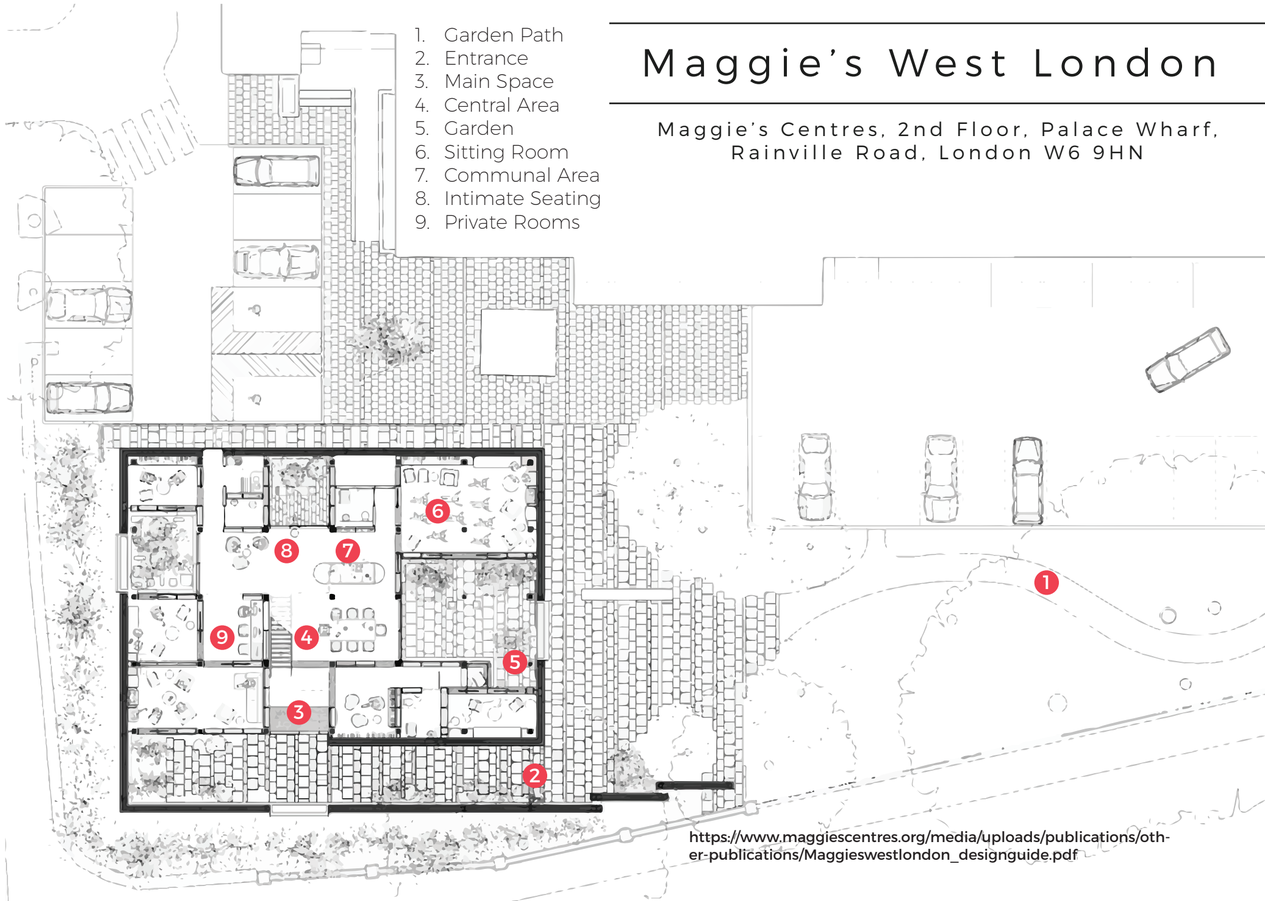
Fg. 7

"However, it is the entrance, or the moment of entering, that plays the most significant role on different levels. On the architectural level, the absence of a clear reception desk has a major impact. According to the brief, the architect states: 'There is no reception desk which is vital. You know, the fact of having a reception desk empowers somebody behind, automatically gives the wrong feeling... As mentioned previously, the absence of a reception desk avoids that the person behind it is being empowered. This simple intervention has a major influence on the kind of relationship between those affected by cancer and the caregivers. Since there is no desk, people entering the building should be personally welcomed and the personnel cannot hide behind their desk." (Annemans et al., 2012 pg. 5-7)

Maggie's West London

Maggie's Centres, 2nd Floor, Palace Wharf, Rainville Road, London W6 9HN

1. Garden Path
2. Entrance
3. Main Space
4. Central Area
5. Garden
6. Sitting Room
7. Communal Area
8. Intimate Seating
9. Private Rooms



https://www.maggiescentres.org/media/uploads/publications/other-publications/Maggieswestlondon_designguide.pdf

Conclusions

With the completion and organization of these research findings, I have found that there are many ways in which an environment can effect and influence the way a patient with cancer feels. Narrowing down the most important elements of a healing environment helps paints a picture of the ideal oncology care center. The evidence I have found and organized into four main catagories: Choice & Control, Furniture/Physical Elements, Visual/Colors/Art/ Sound, and Spatial Layout will hopefully be helpful to future designers when creating centers of cancer. Perhaps with this kind of information collected, buildings and spaces can be better designed to improve the lives of many people and maybe even help cure them.

Images

Figure 1: https://www.pinterest.com/sandralarsonco/infusion-center-design/?lp=true
Figure 2: https://i.pinimg.com/736x/e2/93/35/e29335a8b23e2d977cadb0abc532d3a5--health-care-mental-health.jpg
Figure 3: https://www.pinterest.com/pin/104075441361906097/
Figure 4: http://www.prc-magazine.com/build-to-care-maggies-cancer-caring-centre-hong-kong/
Figure 5: http://www.wilkinsoneyre.com/projects/maggies-centre
Figure 6: https://www.dezeen.com/2017/06/21/drmm-maggies-centre-centre-care-architecture-courtyard-oldham-manchester-uk/
Figure 7: http://thepioneerwoman.com/life-and-style/the-girls-bathroom/?utm_source=feedburner&utm_medium=email&utm_campaign=feed%3A%20pwhomeandgarden%20%28pioneer%20woman%20home%20and%20garden%29

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