

## IMMEDIATE OBJECTIVES

**Travel as a Barrier:** Transportation seems a trivial need for accessing cancer treatment, but there are several studies that indicate that transportation barriers affect the quality-of-care an individual receives in the United States. Transportation barriers lead to rescheduled or missed appointments, delayed care, and missed or delayed medication use. This barrier particularly affects those with lower incomes or the ones who are under/uninsured.<sup>i</sup>

For instance, women living farthest from radiation facilities (>50 miles vs. <10 miles) were more likely to undergo mastectomy versus Breast Conserving Surgery (BCS). Among only those who underwent BCS, women living farther from radiation facilities were less likely to receive guideline-concordant RT<sup>ii</sup>

Citing another example, Adolescents and young adults (AYA) living in rural and those living farther from the diagnosis reporting hospitals are more likely to be diagnosed at a later cancer stage, when it is generally less treatable, and have lower survival rate compared to AYAs living in metropolitan areas.<sup>iii</sup>

Geographic distance from the cancer care facility impacts the quality of treatment that a cancer patient gets in the first case, while in the second it affects the survival chances of the patient.

The performance of healthcare system is based on following parameters – Access to Care, Universality of Coverage, Equity, Affordability, Quality, Efficacy and Safety, and Innovation. Thus, innovations in the quality of care, are not likely to improve health outcomes alone. We need to improve solutions that improve access to healthcare too.

**Unit of Analysis:** Distance between the patient's residence and the reporting hospital can be classified as short ( $\leq 2.5$  miles), intermediate ( $> 2.5$  to  $< 50$  miles), or long ( $\geq 50$  miles). I am focussing on patients who stay at a distance longer than 40 miles from the treatment facility.

As per National Cancer Database, each year, there are 250,000 people traveling more than 40 miles to avail cancer treatment away from home. These patients, are also eligible to participate in several lodging programs run by charity houses like Hope Lodging, Ronald McDonald house.

I want to evaluate options that these cancer patients have to reduce the travel overhead - How are various forces aligned to help these patients in availing quality and affordable treatment?

**ONE LEVEL HIGHER**

Why does travelling to a healthcare facility to avail treatment become a barrier? –

1. **Lack of vehicle or capability to travel:** Cancer patient may lack the physical stamina required from one place to another for treatment. Consider example of single mother who is a cancer patient. Even, if she wants to travel to-and-fro the cancer facility. It's not possible for her physically. So, she will need access to some shuttle service, or drivers at cheaper cost, so that she can avail treatment.
2. **Limited Alternatives:** I called Ronald McDonald house to book a stay for myself. The administrator told me that I was in the waiting queue of 6 people and advised me call several other charity houses and enroll myself in several other cancer charity houses as an alternative solution. So, I called several hotels nearby cancer hospitals. Average hotel price was around \$110/ night.  
So, if there is limited supply of hotels, stays and charity houses which are affordable, then it becomes a barrier for patients in availing treatment.
3. **Cost of travel:** There are significant charges associated with travel in terms of care maintenance, travel insurance, baggage fees, parking, gas, tolls, air tickets etc. If the patient decides to stay near the cancer facility, then they may also incur hotel charges, grocery, laundry charges, food and kitchen charges etc.
4. **Planning Overhead:** Planning travel is not easy. It must be challenging for a cancer patient or their caregiver who are already mentally strained to calling several houses, explaining their situation, coordinating care, managing finances, finding support when moving to a new location, adds up very quickly. Adding to that, there can be emergency situations which would require immediate booking and stay management.

**Ultimate Objectives:** So, when we say, that we want to reduce travel barrier, we want to achieve following ultimate objectives

1. Provide efficient supply of travel options so that cancer patients do not find themselves in the waiting queue
2. Reduce the cost associated with the travel, so that its affordable
3. Reduce friction so that there is limited planning overhead

## OTHER SOLUTIONS/ ALTERNATIVES

For the purpose of this exercise, we will be exploring the alternatives present in Seattle. Seattle is host to several Cancer hospitals and Research Centres, like Fred Hutchinson Cancer Research, Seattle Cancer Care Alliance, UW Medicine, Swedish Cancer Institute. People from all over the world come to Seattle for access to advanced cancer treatments, like bone marrow transplant, and other lifesaving procedures.

Let's pick each ultimate objectives, and consider existing solutions present in Seattle.

### **Objective 1: Provide efficient supply of travel options so that cancer patients do not find themselves in the waiting queue**

To structure the consideration of alternatives, I will break down travel supply-chain solutions in 3 groups – Short-distance commute solutions, long distance commute solutions and Housing and lodging Solutions. Now, we will start to look at each of the group, and consider solutions in it. We will also try to evaluate what psychological element of value is being prioritized by solutions in each theme.

**1- Short Distance commute Options:** Short distance travels, are like day trips typically less than 70 miles.

Solution Pathways	Examples
Provide volunteer drivers	<b>King County Senior Services Program</b> provide volunteer drivers for medical appointments for King County Residents who are older than 60.  Other Example – <b>Human Services Council</b>
Provide Short Rides	American <a href="#">Road To Recovery Program</a> provides rides to patients and their caregivers if they are unable to drive themselves.  <b>King County Senior Services Hyde Shuttle</b> which can provide rides for medical appointments Other Examples- <b>Pierce County Shuttle, Special Mobility Services</b>
Develop Alternative Modes of Transport	<ul style="list-style-type: none"><li>• <b>King County Metro offers programs</b> such as King Country Metro Access Bus which takes you anywhere a a metro bus operates or Sound Transit Light Rail Operates.</li><li>• <b>Solid Ground Program</b> provides free circulating buses to access health and human services in downtown Seattle</li></ul>

To get exhaustive list of all options for short term travel solutions. Refer [here](#)

### **2 - Housing Solutions:**

Solution Pathways	Examples
Charity Driven Houses that provide services for free	There are charity houses like <b>Ronald McDonald House</b> , or <b>Collegiana guest houses, Hope Lodging</b> which work in collaboration with hospitals. They provide services either free of cost, or at very subsidized rate.
Easier to book hotels that provide they rooms at subsidized rates	<b>Joes House</b> provides an aggregated list of hotels along with their phone numbers and contact details. These hotels provide their services at subsidized rates.

Allow individuals to rent their room at a much affordable rate to cancer patients	<b>AirBNB - Open Housing Program</b> which contains around 650 rooms to show support for cancer patients.
Provide virtual treatment to patients reducing the frequency of travel	Zoom based live video call for appointments can be used to help patient remote at far distances.  Other examples - <a href="#">98point6</a> , <a href="#">Kaiser Permanente Virtual Care</a>

### 3: Long Distance Commute Solutions:

Solution Pathways	Examples
Provide free Air Travel Solutions to patients	There is a <b>Corporate Angel Network</b> that helps cancer patients access to the best treatment by arranging free travel for them on corporate aircraft. Other example includes <b>Air Lifeline, Angel Flight</b> .
Provide sponsored/free facilities for long-distance Bus Tours	Angel Bus program provides gas cards, ground transportations, volunteer drivers for trips longer than 70 miles longer one way.  Other examples include: <b>Bolt Bus, Mercy Medical Angels etc</b>

### Objective 2: Reduce the cost associated with the travel, so that its affordable

There are 5 solution pathways as mentioned in table below using which the financial burden on the cancer patient and their family can be reduced while travelling.

Solution Pathways	Examples
<b>Sponsorships</b> provided by support foundations to cover part/all of the travel related expenditure.	Programs such as <a href="#">Susan Lang Pay-It-Forward</a> Patient Travel Assistance Program which covers \$500 to cover the cost of treatment-related travel and lodging expenses for the patient and caregiver.  <a href="#">CancerCare</a> also provides financial assistance for non-emergency medical travel  Other examples: Air Charity Network, HealthWell Foundation out-of-pocket expense coverage programs, etc
<b>Health Insurance</b> can cover the cover associated with the travel	Travel for availing treatment is covered in Medicaid via its <a href="#">HopeLink</a> Program which is accessible to low-income groups  <a href="#">Allianz Global Assistance Program</a> provide travel insurance to cancer patients who need to cancel their plans because of any medical emergency.
Providing travel facilities at a <b>subsidized price</b>	<a href="#">MD Anderson Lodging lists</a> a whole bunch of hotels that provide hotels at subsidized prices to cancer patients

Using <b>Crowd Funding</b> based solutions to cover cost related to travel	Crowd-funding apps such as <a href="#">GoFundMe</a> and <a href="#">Ketto</a> are also useful to raise funds for cancer treatment
Special <b>Subscription Based Program</b> like card or pass for cancer patient which can help in accessing travelling services at cheaper rate	<a href="#">Metro's Taxi Scrip Program</a> : Provides a 50 percent discount on seven bookings of taxi scrip each month for low-income King County residents who have a disability or are older than 65

**Objective 3: Reduce Friction so that there is limited planning overhead**

Let's evaluate current mechanisms for reducing frictions while accessing travel/ lodging and sponsorship solutions.

Solution Pathways	Examples
Reducing the difficulty in finding ride for non-emergency medical travel	<a href="#">Chemocars.org</a> – It finds on-demand free rides via Uber and Lyft for cancer patients to and from the cancer treatment facility.  <a href="#">FindaRide.org</a> : An interactive map created by HopeLink that compiles specialized and alternative transportation resources in Snohomish, King and Pierce Counties.
Aggregating hotel listings to enable patients in finding hotels easily	<a href="#">Joes House</a> provides an aggregated list of hotels along with their phone numbers and contact details. These hotels provide their services at subsidized rates.
Non-Cancer specific apps can be used to reduce cancer treatment related friction	Uber, Airbnb, Expedia have been providing their services to cancer patients as part of its philanthropic programs.
Patient Support Groups and Palliative Care to assist the patient in planning their travel	<a href="#">palliative</a> care group of a patient such as social worker can help them locate rides and enable them to book it.

### CATEGORIES OF SOLUTION PATHWAYS

I have tried to club various solution pathways based on commonality amongst the resources which are being provided to the cancer patient, resource ownership, and at what price is the resource being provided for travel assistance. For instance, individuals like you and I are responsible for helping cancer patients in their non-emergency medical travel in following solution pathways:

- Rent room in our house at a much affordable rate to cancer patients
- Volunteer to drive cancer patients to-and-from the treatment facility.
- Donate money via Crowd Funding website to help cancer patients cover the out-of-pocket expense.
- Take part in social work to become part of Patient Support Groups

In my mental model, all of the above solution pathways can be clubbed in a single category because they rely on individual's time, resources and money to provide for travel assistance. They are different from solution pathways involving access to an expensive service provided by a company at a subsidized rate to the cancer patient (which will be in a different category)

In the table below, I have enumerated all the categories along with the solution pathways it covers.

Category	Solution Pathways
<b>[A]</b> Solutions that rely on access to individual's time, resource and money to provide support for cancer patient	<ul style="list-style-type: none"><li>• Rent room in our house at a much affordable rate to cancer patients</li><li>• Volunteer to drive cancer patients to-and-from the treatment facility.</li><li>• Using Crowd Funding based solutions to cover cost related to travel.</li><li>• Patient Support Groups, palliative care to ease the travel process</li></ul>
<b>[B]</b> Solutions that are dependent upon subsidized access to assets owned by for-profit companies.	<ul style="list-style-type: none"><li>• Hospitality companies providing hotel rooms at subsidized rates</li><li>• Air Flight companies providing travel facilities at a subsidized price</li><li>• Air Flight companies providing free Air Travel Solutions to patients in collaboration with non-profit organization</li><li>• Travel Based Companies like Uber allowing start-ups to use their booking engine to help finding ride for non-emergency medical travel</li></ul>
<b>[C]</b> new plans/policies that are made just to support cancer patients in their travel	<ul style="list-style-type: none"><li>• Develop Alternative Modes of Transport specific to cancer patients</li><li>• Medicaid to cover the cost associated with the travel</li><li>• Special Subscription Based Program like card or pass for cancer patient which can help in accessing travelling services at cheaper rate</li></ul>
<b>[D]</b> charity services provided by Non-profit organizations	<ul style="list-style-type: none"><li>• Charity Driven Houses that provide services for free</li><li>• Sponsorships provided by support foundations to cover part/all of the travel related expenditure.</li><li>• Provide Short Rides by partnerships</li><li>• Provide sponsored/free facilities for long-distance Bus Tours</li><li>• Providing travel facilities at a subsidized price</li></ul>
<b>[E]</b> Solutions that rely on access to new pool of resources in a friction less manner and often in scale	<ul style="list-style-type: none"><li>• Provide virtual treatment to patients reducing the frequency of travel</li><li>• Reducing the difficulty in finding ride for non-emergency medical travel</li><li>• Aggregating hotel listings to enable patients in finding hotels easily</li><li>• Non-Cancer specific apps can be used to reduce cancer treatment related friction</li><li>• Using Crowd Funding based solutions to cover cost related to travel</li></ul>

### CAUSAL MECHANISMS WHICH ARE COMMON ACROSS SOLUTIONS WITHIN A CATEGORY

Let's try to identify the causal/ driving forces which are responsible for providing a spectrum of solution pathways to the cancer patient. Let's take a look at each and every category, and try to understand the causal forces.

**[Category A]** Solutions that rely on access to individual's time, resource and money to provide support for cancer patient rely on '**goodwill of individuals**' as a driving force. If individuals are not empathetic towards cancer patients and their plight, they will probably not volunteer for the extending support to the patient.

**[Category B]** Solutions that are dependent upon subsidized access to assets owned by for-profit companies rely on '**Corporate Social Responsibility**' to incentivize these companies for philanthropic efforts. The company generates positive marketing and also get tax subsidies for providing their services at cheaper rates.

**[Category C]** Solutions that came into picture because of new plan/ policies that are made just to support cancer patients in their travel, are driven by **Government Interventions** - via policies to enable more affordable, accessible treatment.

**[Category D]** Let's consider charity services provided by Non-profit organizations (Category D). These solutions are fulfilled by **Non-Profit Organizations via fund raising, partnerships and resources**. If the non-profit organizations are unable to raise funds via charity events, they will not be able to fund these solution pathways as well.

**[Category E]** Solutions that rely on access to new pool of resources in a frictionless manner and often in scale are generally **Tech-Enabled** – via innovations to reduce friction.

### WHAT'S ADDRESSED, WHAT'S NOT

Let's evaluate each solution pathway based on different aspects that are addressed by it. We will try to evaluate which psychological element of value is addressed, and which value stays as a weaker force in the industry.

#### Solution Pathways to provide short distance commute options:

1. Provide Volunteer Driver drive cancer patients to-and-from the treatment facility.
2. Provide Short Rides for pickup-and-drop to and fro cancer facilities
3. Develop Alternative Modes of Transport

#### Which Element of Value are these solutions prioritizing?

These solutions are addressing 4 psychological needs of cancer patients –

1. Need for Convenience: In some of the travelling options even door-to-door pickup feature is available for the patient
2. Need to avail services at cheap/ no cost: A cancer patient is trying to manage multiple expenses. As such, the need to save money so that it can be utilized for something more important like copay of insurance, is a primitive desire for many cancer patients and their families.
3. Improved access: Improvement in access both coverage wise, and also in terms of can a patient get to prioritize their request. Almost all of the above-mentioned options provide customer support numbers/ helplines using which the patient can prioritize their request.
4. Range of Alternatives: It's apparent that there are several alternatives present. One might wonder in the presence of all of these alternatives, how are patient actually picking and scheduling these options.

#### Which element of value is currently solved by weaker forces in the industry?

1. Ease of Access: There is no convenient app like Uber can find cheaper shuttle for cancer patient. The cancer patient has to scroll through numerous sites to find a convenient booking option for themselves.

#### Solution Pathways to provide housing/ lodging solutions

1. Charity Driven Houses that provide services for free
2. Easier to book hotels that provide rooms at subsidized rates
3. Allow individuals to rent their room at a much affordable rate to cancer patients
4. Provide virtual treatment to patients reducing the frequency of travel

#### Which Element of Value are these solutions prioritizing?

These solutions are addressing 2 psychological needs of cancer patients –

1. Need for Emotional Support: Charity houses stress immensely in their websites that they care about the cancer patients' emotional well-being. They also recognize that cancer patients/ caregiver have a difficult time in hospital.
2. Focus on philanthropy - The hotels and the room rental services like Airbnb consider providing features as part of their corporate social responsibility. They are not committed deeply to the cause like charity-driven houses e.g. Hope Lodging

#### Which element of value is currently solved by weaker forces in the industry?



1. Long Waiting lines, Complex Booking Procedure: Patients are held in long waiting lines, and have to self-book themselves by calling several charity houses.

#### **Solution Pathways to reduce the cost of traveling expenses**

1. Medicaid to cover the cost associated with the travel
2. Special Subscription Based Program like card or pass for cancer patient which can help in accessing travelling services at cheaper rate
3. Using Crowd Funding based solutions to cover cost related to travel
4. Provide sponsored/free facilities for long-distance Bus Tours and Air flight travels

#### **Which Element of Value are these solutions prioritizing?**

These solutions are addressing 2 psychological needs of cancer patients –

1. Community Reassurance: Crowd Funding based solutions extend fund raising even further, by letting the donor pass well wishes to the patient to provide reassurance.
2. Instils Hope in Patient: Air Travel Solutions such as Corporate Jets in the areas where airline access is minimal instils hope in cancer patients. It demonstrates that even when providing support is very expensive, government and non-profit organizations are still willing to extend a helping hand.

#### **Which element of value is currently solved by weaker forces in the industry?**

1. Financial Constraints of the Middle-Income Family: Average Middle-Income families generally do not qualify for sponsorships. Their insurance does not cover their travel cost as well. So, their option is limited to donations or crowd-fundings. But the efficiency of crowd-funding based solutions is limited in nature. As per CNN, the average crowdfunding campaign for cancer patient asks for around \$20,000, but gets only around \$5000.<sup>iv</sup>
2. Ineffectiveness of Crowd Funding Solutions: On average, the campaigns studied set a goal of about \$20,000 and took home about \$5,000<sup>v</sup>

#### **Solution Pathways to Reduce Friction so that there is limited planning overhead**

#### **Which Element of Value are these solutions prioritizing?**

1. Increases Reach: Tech-based solutions increase the ease with which cancer patients can access travelling alternatives available to them.

#### **Which element of value is currently solved by weaker forces in the industry?**

1. Limited Functionality: Since these apps strive to be non-profit, they cannot build high-tech solutions. They are entirely dependent upon goodwill of the volunteers due to which they cannot provide much expansions.
2. Dependency on Technical Literacy: The tech-based solutions can only serve patients which have technical literacy and do not have hearing or visual disability.
3. Lack of Real-Time Updates: There is none which handles the urgent, fragile and immediate needs specific to cancer patients.

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<sup>i</sup> Syed, Samina T et al. "Traveling towards disease: transportation barriers to health care access." *Journal of community health* vol. 38,5 (2013): 976-93. doi:10.1007/s10900-013-9681-1

<sup>ii</sup> Syed ST, Gerber BS, Sharp LK. Traveling towards disease: transportation barriers to health care access. *J Community Health*. 2013;38(5):976-993. doi:10.1007/s10900-013-9681-1

<sup>iii</sup> Johnson KJ, Wang X, Barnes JM, Delavar A. Associations between geographic residence and US adolescent and young adult cancer stage and survival. *Cancer*. 2021 Oct 1;127(19):3640-3650. doi: 10.1002/cncr.33667. Epub 2021 Jul 8. PMID: 34236080.

<sup>iv</sup> *The Average Crowdfunding Campaign for Cancer Care ... - CNN.*  
<https://www.cnn.com/2019/09/09/health/medical-fundraising-unmet-goals-trnd/index.html>.

<sup>v</sup> *The Average Crowdfunding Campaign for Cancer Care ... - CNN.*  
<https://www.cnn.com/2019/09/09/health/medical-fundraising-unmet-goals-trnd/index.html>.