GCIL Seattle 2021: DESC External

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University of Washington, Seattle

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Executive Summary

Individuals experiencing homelessness are often managing multiple challenges in addition to the hardships of being without a home. Personal challenges include mental health or behavioral conditions, chronic health conditions, and histories of trauma. External challenges may consist of national and local policy, the availability of community resources, and health and shelter systems.

DESC

The challenges and needs of individuals experiencing homelessness vary on a case-by-case basis, and are often multidimensional. The Downtown Emergency Service Center (DESC) that our team worked with this quarter acknowledges that the residents of their permanent supportive housing service have diverse needs, and work to address these needs for the most marginalized and vulnerable of the community. Their mission is to help high need individuals facing housing instability by using a housing first approach: providing individuals with housing and resources prior to placing them into social stabilization programs.

Outpatient Services

One of the needs addressed by DESC is healthcare needs, where a subset of the permanent supportive housing residents receive outpatient services. This spring, our external team has worked closely with DESC staff to find solutions to mitigate the challenges elicited by the COVID-19 pandemic for telehealth appointments.

Telehealth

After gaining as much information and understanding as possible through meeting with DESC staff members, we developed a solution for more effective telehealth appointments for the permanent supportive housing residents. Our proposed solution is the creation of telehealth stations to increase comfort and privacy during telehealth appointments, which includes an information poster titled “Things to Discuss with your Provider”. Our hope is for our proposed solution to increase resident access to outpatient services, thus improving resident health outcomes.

PROBLEM

Initial

COVID-19 has had a disproportionate burden on vulnerable populations, including individuals experiencing homelessness. Individuals who are housing insecure have a high rate of health conditions that put them at greater risk of poor health conditions should they contract COVID-19 while also increasing the pre-existing barriers to receiving healthcare and social support. Residents at DESC have shared this experience throughout COVID-19 as services they have usually relied on now have diminished services or switched to operating in a remote manner. In addition, many residents of DESC’s permanent supportive housing program have “high service needs” which includes those with mental, behavioral, physical, or substance difficulties. The core of the problem statement our team was presented with was the challenge of connecting DESC residents to outpatient care during the COVID-19 pandemic. Prior to COVID, interactions were face-to-face and providers provided outreach services, which was effective in providing care for residents. Our task was to come up with a solution that addressed this difficulty while also accounting for the needs of individuals with behavioral healthcare difficulties and limited access and knowledge of technology.

Learned

The initial problem we were presented with was the lack of access to healthcare DESC residents were facing throughout the pandemic. However, as we progressed throughout the quarter and interviewed various
stakeholders across DESC, we learned that a major contributing factor to this problem was the lack of access to technology and the lack of knowledge about technology. We learned that DESC’s residence locations do not have Wi-Fi available to residents and that many of the buildings are built from cement and therefore, are not well structured for great connectivity and hotspots. We also learned how DESC has limited funding available, how there is not currently budgetary space for increased spending on Wi-Fi and technology devices, and difficulties DESC has previously faced with getting grant funding for increased technology. In addition, we learned how technology literacy is a major gap among residents and many are unable to set themselves up for appointments. From interviews with medical staff, we learned about how residents initially were reluctant to use telehealth as they prefer in-person communication, how some have adapted, and how many residents are feeling isolated and disconnected at this time. These key informants believe the best way to improve residents’ use of telehealth would be to have increased access to technology including cell phones and computers which would include the addition of Wi-Fi in the DESC residence buildings. They also expressed desire for residents to gain understanding of what would occur in a telehealth appointment and when these types of visits would be beneficial.

CUSTOMER & BENEFICIARY

Customer

**DESC Residents** The primary customer who our solution addresses are residents of DESC’s supportive housing program. A majority of these residents face many challenges in their daily lives outside of being housing insecure including substance use disorders, mental illness, and developmental and/or physical disabilities. For background, residents are individuals who become connected with DESC via King County’s Coordinated Entry for All program. Through DESC, individuals sign a lease and pay a maximum of 30% of their income for rent. The COVID-19 pandemic has brought extra challenges for DESC residents as many of the services for healthcare residents relied on, now have fewer services available or have transitioned to virtual services. From our stakeholder interviews, we learned that many residents have been unwilling to use telehealth or unsure how to use it, showing that residents have been unable or unwilling to solve this problem for themselves. We heard that DESC does not have Wi-Fi available to residents nor the technology available for residents to use. We learned how many residents are transient and often do not remember their own appointments without the assistance of outreach. We also learned that many residents, especially those who had preexisting mental health challenges, have been feeling increased emotional distress as COVID has taken away their sense of community.

Beneficiary

**DESC Staff** Our secondary beneficiary are DESC staff who assist residents in setting up their telehealth appointments. From our stakeholder interviews, we learned that because residents face numerous challenges in scheduling, remembering, and utilizing telehealth, DESC staff are needed to help residents. The staff are currently working with a limited amount of telehealth technology to actually facilitate these appointments and often have to resort to holding appointments in any space available to, such as their own offices. Because of the lack of Wi-Fi, even the task of maintaining proper connection is a challenge. While there are typically under five appointments a day per housing location, there are so few medical staff that are currently allowed to be in person; this leads to staff facing immense pressure from having to simultaneously juggle tasks of reminding residents and setting up telehealth appointments. Because the ultimate goal of our solution is to make using telehealth easier for residents, our goal is that by doing so this will benefit staff as residents may be less reliant on them and staff would now be able to point to resources for residents to utilize for setting up appointments.
**SOLUTION**

**Solution & Prototype**

**Telehealth Station** After conducting several interviews, we identified the need for a space dedicated for telehealth use. By using IKEA’s kitchen planner tool, we were able to design an ideal telehealth station. This station, pictured on the right, gives DESC residents a private and comfortable space to attend their doctor’s appointments. Ideally, the station would be in a private room and would include a desk, chair, computer desktop, as well as educational materials in the form of posters or brochures. This station is also intended to have a desktop computer directly connected to ethernet as an alternative to hosting telehealth calls on devices using Wi-Fi and hotspot which has been unreliable according to our interviews with medical staff – this improved connection will be accomplished by purchasing computers and purchasing items needs for ethernet, such as connecting cables, routers, and laptop adapters in case those devices are used. As part of our prototype we created example posters to be hung in this space. Enlarged images of this room diagram and a diagram of a model that is meant to take up only part of a room can be found in Appendix 1. With this solution, we also created an item recommendation list which list of all the supplies used to create our prototype on IKEA’s website and other supplies needed for our ideal technology set up (see Appendix 2).

**Posters** The telehealth space offers an ideal environment for providing educational materials. For individuals who have not been regularly seeing a provider, a doctor’s appointment may be an intimidating experience, leading to individuals providing incomplete information regarding their current health. To help make the most of limited appointment times and ensure that individuals’ needs are being addressed, we created a poster of important topics that residents should discuss with their doctor using Canva. Additionally, we want to ensure that all DESC residents know how to schedule appointments if they deem it necessary. To aid with this, we created a simple infographic that outlines the steps to scheduling an in-person or telehealth appointment with a provider. Ideally this poster would be available in multiple languages throughout common areas that DESC residents are likely to see. Both example posters are listed in Appendix 3 as well as multiple visuals of the ideal station.

**Theory of Change** By allowing access to a private space with the necessary technology, we hope to increase the appeal of using telehealth during the COVID-19 pandemic among DESC residents. By increasing the appeal of utilizing telehealth, we expect to see an increase in the number of telehealth appointments among DESC residents. With an increase in outpatient appointments, we suspect that residents will be better equipped to manage their health issues and over an extended period of time we will see better health outcomes. Through our interviews, it became clear that residents had overwhelmingly negative feelings towards using telehealth. According to Noah and Kelly, it was difficult for residents to feel comfortable and connect with their provider. By creating a private space, we hope to mimic the comfortability one might find at an in-person appointment in a doctor’s office.

**Feedback & Incorporation**

**Technology Access** In the early stages of product design we noted a significant need for technology including computers and hot spots or Wi-Fi. To address this need we planned on suggesting several grants to purchase needed technology to improve telehealth access. After discussing this idea with our mentor, Noah, we were informed that DESC already had a few grants similar to the ones we were suggesting. Additionally, Noah stated that “grants are great but they often have huge hoops that may not make them worth all the work.” With this information we decided to scrap the idea and pursue alternatives to increasing outpatient care among DESC residents.
Logistics The next set of potential solutions we explored included designing a permanent telehealth space that could efficiently use ethernet instead of Wi-Fi as well as providing educational materials to teach residents how to use telehealth. After seeking feedback from Noah on these ideas we were told to pursue the posters as the permanent station could be costly and may be logistically more difficult. However, after receiving additional feedback from our instructors, we came to the realization that posters alone would not create the change we were hoping to see. To address the cost issue that Noah raised we are providing a list of places where the necessary furniture could be acquired at a lower cost.

Poster Accessibility Our first prototype was the poster that included the list of topics that residents should discuss with their doctor. After sharing prototypes with the GCIL class, one student suggested making the posters available in multiple languages. We thought this was a great suggestion and aimed to incorporate it in our final solution. Though none of our team is fluent in languages besides English we are encouraging DESC staff to translate the posters to languages that will best meet the needs of the residents. After discussing making the posters available in multiple languages we realized that some residents may not be literate enough to read our posters. To address this issue, we included several images to help convey the message.

NEXT STEPS

Financial Sustainability

Our project team recommends for telehealth station funding to come from community and corporate partnership programs as well as community donation campaigns. The first program which will help DESC establish and improve internet connection is through the City of Seattle’s Access for All Broadband Internet Service Connection. The City of Seattle Internet Technology Department has partnered with network provider companies Comcast and Wave in order to offer free high-speed internet connection and services for non-profit organizations that aim to provide technology that serve low-income, underserved, and/or vulnerable populations. The process for applying for these services includes first completing and submitting an application for a specific housing site that details their current network access, their intended use of the internet service, and how they plan on helping promote technological literacy. If their organization is accepted, DESC will then be contacted by the cable company who will do a site survey of the area to see if it is serviceable by their network. The installation will then be able to be completed within approximately a month. As DESC is struggling with access to little data availability and little to no Wi-Fi services to fund their internet connection, our team believes this is the perfect option for DESC to improve their connection for at least a few of their locations.

The second program is IKEA’s Sponsorship and Charity Requests opportunity. If a non-profit organization’s proposal request is accepted, a local IKEA store will donate products, offer financial support, and deploy a team of IKEA coworkers to help the organization carry out their mission. The criteria for an organization to be accepted include demonstrating that they support the local community, encourage diversity, innovatively utilize IKEA’s products, and match IKEA’s mission of making a positive impact on the community. A must be submitted to a local IKEA store’s Marketing department which includes details on the goals of the telehealth station and which IKEA products are used. As the approval timeline is not publicly shared, DESC will need to wait for IKEA’s decision on whether DESC’s mission aligns with their company’s goals.

DESC can also consider kickstarting a campaign to raise money specifically for expanded internet connection and telehealth station supplies. On their donation website, DESC currently only accepts financial donations for lowering overall program costs and also accepts donated “in-kind” items from the community, i.e., clothing, hygiene products, bedding, non-perishable food, and small appliances. As their organization currently rejects the donation of any furniture, we would recommend for their organization to consider beginning a marketing campaign to raise finances and collect furniture specifically for improving telehealth access. Through this approach, DESC can avoid major costs for bulk purchasing furniture they otherwise can obtain from the community.
Short-Term

**Implementation Plan** Our project team estimates that the full implementation and set up of the telehealth stations to several DESC housing locations should take six months to one year. The first month will be dedicated to our team distributing our educational poster designs and telehealth stations prototypes to the DESC housing staff team involved with coordinating resident appointments as well as DESC's overseeing management. Because of time constraints during the span of the GCIL Seattle program, our team was only able to consult with our mentor and a few clinical directors and researchers for feedback on the designs. We would like for the designs to be shared with the residents and housing staff that directly work with the residents as well to ensure the posters designs and overall telehealth set up are fully accessible for the community. We envision that our solution prototypes will be distributed to DESC's community advisory board, which is composed of DESC staff, residents, and medical staff and researchers who periodically meet to collect feedback and ideas for projects happening in the community. In this timeframe, a team made up by the management team and volunteer medical, finance, and technology technician staff will also ideally form to oversee this project.

**Telehealth Station** Once feedback has been received and re-applied to the prototype, the next stage of the plan is to assess the technology and supply needed for all the housing locations interested in establishing a telehealth location. While our plan would ideally be pursued by all DESC housing locations for the purpose of providing widespread access to quality health care, we aim to work within DESC's limited financial budget to carry out this project. For the purpose of researching the effectiveness of these telehealth locations, we aim to have at least two housing locations establish these stations so that two separate communities can be studied – this will be further elaborated in the Prototype Testing section. For the housing sites that can set up these stations, a Google Form survey will be distributed in order for each site to communicate their furniture and technology need, including items such as chairs, tables, sound-absorbing desk dividers, computers, routers, and LAN cables which can be requested at various quantities. The form can be found in Appendix 4, and our team's recommended product supply list can be found in the Appendix 2. The information gathered from this survey will be used by the planning team to estimate total cost of all equipment purchased in order to assess how much can come from DESC's budget and how much needs to be funded with alternative sources, which was discussed in the Financial Sustainability section of our report. The remaining time in our estimated project timeline will be dedicated to applying for the corporate program partnerships, establishing a donation campaign and in general, purchasing and collecting the equipment and setting up the expanded ethernet network service.

**Posters** As for the posters, our team recommends all locations to incorporate these into their sites. Depending on DESC's feedback for accessibility, there may be a need to produce posters in several languages for non-English speaking residents. To address this, our team recommends for DESC to internally translate the poster text through the help of staff volunteer; if this is not available, our team can also utilize free resources such as the UW Medicine Interpreter service to translate our posters. Once the organization has all the designs they need for their location, our team recommends for DESC to seek out affordable printing services from local Seattle business – a few businesses that our team can easily access near our University of Washington Campus include EZ Copy N Print and Professional Copy 'n' Print which our team can contact for printing quotes and placing orders. Our team estimates this process will take approximately one month.

Long-Term

**Accessing Prototype Effectiveness** Once telehealth stations are set up, the next stage of our project plan is to conduct a satisfaction survey for how effective these sites are in improving the residents' health appointment experience. We created a form using inspiration from the San Francisco Housing Opportunities Made Equal Client Satisfaction Survey. Our survey created on Google Forms aims to qualitatively assess how satisfied residents are, how often they are attending their appointments, what challenges they face during appointments, and additionally, ask for specific feedback on how appointments can be adjusted to better cater for their needs and make it an enjoyable experience. Specific questions from our survey can be accessed in Appendix 5.
We aim to use a cohort study to determine the effectiveness of the telehealth stations. Our two groups will be residents in housing sites without telehealth stations (due to financial limitations as discussed in the Implementation Plan section) and residents in sites that did adopt our proposed telehealth stations. The survey will be distributed prior to the opening of any telehealth station to collect baseline satisfaction data related to telehealth services. One year after telehealth stations are opened and patients from at least two housing sites are able to receive adequate access to the stations, we will distribute the survey to all participants again. This will give residents without the new telehealth stations the opportunity to share their general thoughts and report how often they were able to attend appointments; residents with telehealth stations will also be able to report whether the telehealth station improved their experience at all. To supplement this data quantitatively, medical staff can also track how many appointments were attended in total and how many new ones were scheduled over the study period to track changes.

**Future of Telehealth Stations** As for the long-term goals for the telehealth space's useability, our team envisions this space being utilized beyond the COVID-19 global pandemic. The motivation behind establishing telehealth stations initially was to safely give residents access to their health services while shelter-in-place and traveling guidelines were enforced to reduce disease transmission. While Washington State shows positive signs of in-person services returning, as disease transmissions rates decline with the greater distribution of vaccines, DESC staff voice concerns as the number of infection cases unfortunately are still high among DESC residents. Telehealth is a necessary service DESC will be offering for the foreseeable future.

There are several prospective benefits coming from telehealth stations as well. Our stations can help transient residents avoid having to travel to access their appointments as the station is located right in their building. In addition, from our interview with DESC’s Medical Director, they voiced that having this station can also serve as a great way for them to conveniently communicate with outpatient care services providers as well as internet access in these stations are secure and stable. This space is intended to not only serve as a temporary response to the COVID-19 pandemic but also has the benefits of giving DESC residents more autonomy in choosing how to access their health services, whether it is in-person or virtual, and also helping staff conveniently communicate with professionals in order to provide the best care for their patient. The educational posters will also be timeless resources that residents can always access so that they can be educated on their own health needs and resources for them to care for themselves.
REFERENCES

APPENDIX

1. TELEHEALTH STATION DIAGRAMS (DESIGNED VIA KITCHENPLANNER.IKEA.COM)

Telehealth Station Room Design – intended to occupy an entire room

Adapted Telehealth Station Design – intended to occupy an portion of a space
## 2. TELEHEALTH EQUIPMENT PROTOTYPE BREAKDOWN

Below is the list of all the supplies used to create our prototype on IKEA's website and some cheaper alternatives as well as the ideal technology set up.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Seller</th>
<th>Cost</th>
<th>Additional Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk</td>
<td>IKEA- <strong>BEKANT</strong></td>
<td>$209.00</td>
<td>63 x 31½“, adjustable height 65-85 cm</td>
</tr>
<tr>
<td></td>
<td>IKEA- <strong>PÅHL</strong></td>
<td>$59.00</td>
<td>37¾ x 33¾“, adjustable height 59, 66, 72 cm</td>
</tr>
<tr>
<td>Office Chair</td>
<td>IKEA- <strong>LÅNGFJÄLL</strong></td>
<td>$179.00</td>
<td>43-53 cm</td>
</tr>
<tr>
<td></td>
<td>ODGER</td>
<td>$99.00</td>
<td>43-54 cm</td>
</tr>
<tr>
<td></td>
<td>BLECKBERGET</td>
<td>$49.00</td>
<td>46-57 cm</td>
</tr>
<tr>
<td>Sound-Absorbing Desk Divider</td>
<td>IKEA- <strong>EILIF</strong></td>
<td>$150.00</td>
<td>31½ x 59 “</td>
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<tr>
<td>Floor lamp</td>
<td>IKEA- <strong>TÅGARP</strong></td>
<td>$10.99</td>
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<tr>
<td></td>
<td>LERSTA</td>
<td>$14.99</td>
<td></td>
</tr>
<tr>
<td>Plant</td>
<td>IKEA- <strong>DRANCAENA MARGINATA</strong></td>
<td>$12.99</td>
<td>Real potted plant</td>
</tr>
<tr>
<td></td>
<td>FEIKA</td>
<td>$60.00</td>
<td>Artificial potted plant</td>
</tr>
<tr>
<td>Computer</td>
<td>Best Buy- <strong>HP - 20.7” All-In-One - AMD A4</strong></td>
<td>$349.99</td>
<td>4GB Memory - 128GB SSD</td>
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<tr>
<td></td>
<td>Amazon- <strong>Lenovo IdeaCentre AIO 3, 24” All-in-One Computer, AMD Ryzen 3 4300U Mobile Processor</strong></td>
<td>$549.99</td>
<td>Integrated Graphics, 8GB DDR4, 256GB M.2 Name SSD, DVD RW Drive, Windows 10, F0EW00STUS</td>
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<tr>
<td>Router</td>
<td>Amazon- <strong>NETGEAR Nighthawk Smart Wi-Fi Router, R6700 - AC1750 Wireless Speed Up to 1750 Mbps</strong></td>
<td>$78.49</td>
<td>Up to 1500 Sq Ft Coverage &amp; 25 Devices</td>
</tr>
<tr>
<td></td>
<td>Amazon- <strong>NETGEAR Nighthawk Smart Wi-Fi Router (R7000) - AC1900 Wireless Speed (Up to 1900 Mbps)</strong></td>
<td>$154.99</td>
<td>Up to 1800 Sq Ft Coverage &amp; 30 Devices</td>
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<tr>
<td>LAN Cables (for directethernet connection)</td>
<td>AmazonBasics- <strong>RJ45 Cat-6 Ethernet Patch Internet Cable (10 pack)</strong></td>
<td>$24.60 (3ft)</td>
<td>Operating Systems: Windows 10/8.1/8/7/Vista/XP, macOS 10.6 and up, Chrome OS and Linux</td>
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<tr>
<td></td>
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<td>$26.49 (5ft)</td>
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<tr>
<td></td>
<td></td>
<td>$45.51 (14ft)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>$68.14 (25ft)</td>
<td></td>
</tr>
<tr>
<td>USB Laptop Adapters</td>
<td>Amazon- <strong>Cable Matters USB to Ethernet Adapter Supporting 10/100 Mbps Ethernet Network in Black</strong></td>
<td>$10.99</td>
<td></td>
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3. WELLNESS AND TELEHEALTH APPOINTMENT POSTERS (DESIGNED ON CANVA.COM)

**Things to Discuss with a Health Care Professional**

- If you are feeling sad, depressed, & hopeless
- If you have skin injuries & cuts
- If you are struggling with drug or alcohol use
- If you have chest pain
- If you have breathing issues
- If you have a history of medical issues
  - For example: heart, lung, or liver disease, severe allergies, hearing or eyesight loss
- If your body is in hurting
- Appointments are available in-person or online via Telehealth!

HOW TO SCHEDULE A HEALTH APPOINTMENT!

1. Talk with your case manager or DESC staff if you have any health concerns. They will help you schedule an appointment that’s face-to-face, over the phone, or computer with a health care specialist.

2. Double-check your appointment day & time – the appointment will start & end right on time. Staff will help remind you!

3. Arrive at the appointment location. If it’s on the computer, sit back & relax while staff help set up the technology for you!

4. Meet with your health care specialist & share all of your health concerns with them. Your privacy will be protected! This information will not be recorded.

5. Schedule & attend follow-up appointments if needed. The more frequent you attend, the better your health care specialist can help you!

FOR ASSISTANCE: REACH OUT TO ANY STAFF MEMBER

DESC
4. TELEHEALTH ITEM REQUEST GOOGLE FORM (ONLINE ACCESS LINK)

DESC Telehealth Order Request Form
Thank you for your submitting your order request! A confirmation email will be sent to you once your order has been processed and a DESC representative will reach out to you. Please contact (xxx)xxx-xxxx if you have any additional questions in the meantime.

1. First and Last Name

2. DESC Affiliated Position

3. Email

4. Phone Number

Telehealth Furniture Request

5. Which item would you like to request purchasing? Select the quantity you would like to order for your location. Leave the row blank if you do not need to order this item.
Check all that apply.

<table>
<thead>
<tr>
<th>Item</th>
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<td>Router</td>
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<td>LAN Cables (for ethernet connection)</td>
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<tr>
<td>USB Cable Adapter (for laptops)</td>
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6. Additional notes regarding this order

7. Additional items that need to be requested (not included on the list). Please include a URL link to the product and the quantity you would like to purchase

GRAND CHALLENGES IMPACT LAB SEATTLE
UNIVERSITY of WASHINGTON
5. TELEHEALTH SATISFACTION ASSESSMENT - GOOGLE FORM (ONLINE ACCESS LINK)

**Telehealth Satisfaction Assessment Form**

1. On a scale from 1-5, how satisfied are you with your Telehealth appointment experience overall?
   - Mark only one oval.
   - Not satisfied at all 1 2 3 4 5 Completely satisfied

2. On a scale from 1-5, how likely are you to schedule Telehealth appointment again?
   - Mark only one oval.
   - Never again 1 2 3 4 5 Would use again

3. How long have you been attending health appointments?
   - Mark only one oval.
   - Longer than one year
   - Only for a few months
   - Have been attending for a few weeks
   - Just began attending a couple times
   - Rarely or never attended before

4. How often do you attend your scheduled appointments?
   - Mark only one oval.
   - Always attends
   - Attended most of them but have missed a couple
   - Occasionally attend
   - Usually miss the appointments

5. What were some of the challenges you faced in attending your appointments? You can choose more than one answer.
   - Check all that apply:
   - I forgot my appointment date and time
   - I was busy doing something else
   - I don’t like appointments because they are boring or not useful so I don’t attend
   - I prefer appointments in person instead of over the computer or phone
   - Appointments are too long and I can’t focus
   - Other:

6. What other specific things did you not like about your appointment?

7. What was the most helpful thing that made you want to attend appointments? You can choose more than one answer.
   - Check all that apply:
   - Getting gift cards or rewards if I attended
   - Having a staff or doctor reach out to remind me about the appointment
   - Eating snacks while doing my appointment
   - Engaging and helpful appointment with my health provider
   - Feeling comfortable during my appointment
   - Other:

8. What can be improved about your appointment? How can DESC help make sure you get the service and help you need?
6. EMPATHY MAP

- Residents feel isolated from the public, who largely stereotype them as unmotivated, pitiful, & even often lazy people for not being able to support themselves.
- They also fear that the other residents feel disconnected from the outside world as a result of being stranded.
- Residents fear the prospects of support from staff and project managers that can improve their lives through DESC’s services. They also fear that attending their treatment programs regularly & using telehealth is beneficial for them.

- COVID has caused many residents' sense of community to go away & therefore they have little/no interaction with others. Their mental health challenges are likely worse due to isolation. Also, the virtual nature of health appointments has caused residents to have a lack of trust and relationships with their providers.

- DESC residents desire community. They also desire tech (tablets/phones) & will to increase independence. Despite greater technology literacy, in COVID-19, many were moved into private hotel rooms which has increased privacy & thus independence. Residents have reported liking this change.

- They see that the public is avoiding them.
- They fear only see staff & other residents, as they aren’t able to have guests in the DESC residences.
- They see doctors & researchers trying to interact with them by reaching out directly in the streets or through video calling where they are shown various interactive videos which sometimes is hard for them to focus on.

- They say that they want the public to treat them with dignity & to not judge them for their difficult past & current circumstances.
- We have heard them say they do not understand how to use the newer technology necessary for telehealth visits & struggle to remember their appointment dates. We have also heard them say they do not want to use technology for virtual health visits and that they would rather be in person.

- The residents previously slept on the streets & wherever they can find shelter. They struggled to find food & resources, & also often struggled with substance use.
- Residents now are living securely in DESC's houses with their own space & staff regularly checking in with them so they are navigating their various resources for employment, health, & overall improving their livelihood. Many are still often transient & thus appointments may be difficult to hold or to access devices in order to virtually attend the appointments.
- Despite the support, residents still experience many mental health difficulties & thus some are unwilling or unable to attend their health visits that are crucial for their wellbeing.
I want to clarify my priorities
by defining my goals and the path to reach them

7. THEORY OF CHANGE MODEL

**What is the problem you are trying to solve?**
- Due to COVID-19, DESC's in-person outpatient care programs have been heavily reduced & even halted. Most medical services have been shifted to virtual telehealth appointments which rely on Wi-Fi hotspot.
- Because of DESC's limited internet connectivity in all their housing sites & the disengaging nature of telehealth, medical staff are struggling to both coordinate appointments & help residents engage during their appointments.

**Who is your key audience?**
- Beneficiaries: permanent housing residents of DESC
- Customers: DESC clinical staff

**What is your entry point to reaching your audience?**
- Beneficiaries: the clinical staff & our mentor Noah Fay, the Director of Housing Programs will help give us insight on the thoughts & frustrations of residents. They also will help relay our project solution to residents for feedback.
- Customers: direct interactions with several staff members through interviews our mentor helped us set up. Relying on communication from these staff to the rest of the team.

**What steps are needed to bring about change?**
1. Provide residents with educational posters raising awareness on how to schedule appointments & health outcomes residents should be cautious of.
2. Create telehealth stations at each housing site that mimics the comfort of in-person appointments & rely on strengthened internet connection rather than Wi-Fi.
3. Provide residents with satisfaction surveys to periodically receive feedback on how to improve telehealth.

**Measurable effect?**
- Number of new appointments scheduled by residents
- Number of successful telehealth appointments held in a day without technical difficulties
- Change in resident telehealth satisfaction before & after stations

**What are the wider benefits of our work?**
- More effective & meaningful appointments between providers & residents
- Staff will have the capacity to increase the total number of appointments held in a day
- Residents will have a greater trust & enthusiasm to engage with health appointments

**What is the long term change you see as your goal?**
- Improved health outcomes for residents because of greater sense of autonomy & successful treatments programs completed
- DESC will be able to expand their outpatient programs to more unhoused individuals in need
- Patients will trust & rely more on telehealth & other programs offered by DESC, helping them improve their quality of life holistically

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**Key Assumptions**
- In-person outpatient care was far more effective than telehealth
- Residents are open-minded to telehealth
- DESC housing staff & case managers aren't directly involved in appointments
- Our mentor & the interviewed staff were able to accurately represent all the thoughts of the residents
- Residents will positively interact with posters, surveys, & the new telehealth setup compared to the previous model
- Posters will inspire residents to reach out & schedule appointments
- Telehealth stations will result in a change in attitude towards telehealth
- Posters & telehealth stations will improve residents ability to engage with telehealth, even without change the actual appointment structure itself
- Current & future residents of DESC
- DESC clinical & housing staff, volunteers
- Researchers from UW

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**Stakeholders**
- Current & future residents of DESC
- DESC clinical & housing staff, volunteers
- Researchers from UW
**Immediate Needs:**
- Improve technology literacy among residents.
- Increase residents' willingness to use telehealth and knowledge of how they can effectively utilize appointments.

**Future Goals & Ideas**
- DESC can offer access to free internet and technology (e.g., tablets, phones, computers) to all residents for healthcare, personal communication, and recreational purposes.

**DESC Clinical Staff**
Staff play a major role in connecting residents to treatment programs. Our goal is to help staff.

**Benefits**
- To find solutions to increase access to outpatient care for residents of DESC's permanent supportive housing programs.

**External Stakeholders**
- Community Institutions.
- Customers.
- Government.
- Government Institutions.
- Grants & Financial Support.
  - DESC received a city grant for a COVID-19 response but due to excessive paperwork, it wasn’t helpful.

**HB-1336**
- Bill expanding broadband access.
  - A significant barrier DESC faces is the lack of Wi-Fi connectivity in the buildings. This bill would provide expanded broadband infrastructure for DESC's operations.

**Communication with DESC staff**
- DESC housing staff needed to set up the resident appointments.
  - Barriers include housing staff and clinicians not being able to effectively communicate about the scheduled appointment time or other needs of residents because of privacy rules.

**Either see the resident in person or via telehealth**
- Clinicians are unable to provide high-quality health care to residents as they're not all able to engage virtually.
  - Clinicians have to put significantly more effort into revamping appointments & doing direct outreach to promote telehealth.

Residents of DESC's permanent supportive housing program
- COVID-19 exacerbated pre-existing obstacles to receiving quality healthcare as most services are now virtual.

**Business partners**
- Suppliers, distributors, other social enterprises.

**UW (funding research)**
- Trainers to teach staff to use software/establish SOP for technology and internet service company partners (e.g., Comcast).

Housing Assistance Partners (King County's Coordinated Funding For All Program), UW Life Enhancing Alcohol-management Program.

Enforce compliance with HIPAA privacy regulations for tech usage.
9. STORY IN 7 SENTENCES

1. **Once upon a time**, there was a man named Alex Smith who was experiencing homelessness in Seattle, Washington. He came from a difficult background of trauma, poverty, mental illness, and substance use disorder.

2. **And every day**, Alex had to worry about surviving day to day life without having a permanent roof over his head. Until at last, he had begun to see some progress in his health and livelihood improving after he started receiving medical support and temporary housing from DESC for the past few years. The COVID-19 pandemic, unfortunately, arrived in Seattle and began closing off many of the opportunities Alex previously had access to. He suddenly found himself struggling to keep up with medical appointments that were now taking place on cellphones and laptops which he did not own nor knew how to operate with how new the technology models and programs were.

3. **Until one day**: a group of students from the University of Washington stepped in and began trying to tackle these barriers of receiving healthcare that had come into focus during COVID. These students became aware that Alex and his fellow residents lacked a full understanding of when and how to use telehealth, and even learned that some residents did not want to use telehealth for their appointments. The students also learned from DESC staff members that residents do not have access to technology nor the privacy to take their visits. Thus, these students created a plan to set up a telehealth station at Alex’s housing site which would provide him with privacy and technology for taking his appointments. These students also heard the barrier that not all residents knew how or when to use telehealth and so they created some educational materials that Alex and fellow residents can use to set up a healthcare appointment and decide if they should get a healthcare visit.

4. **And because of this**: Alex was now able to be more independent in setting up his own healthcare visits and deciding when he should receive care. Alex was now more excited about going to his virtual healthcare visits because he knew that he could take these appointment calls in a private, comfortable space within his housing site.

5. **And because of this**: appointments were far more engaging and useful as Alex was able to utilize the educational poster “Thing to Discuss With Your Provider” prior to the meetings, which allowed him to better navigate through the appointments and voice his own needs.

6. **Until finally**: Alex now had a far more positive experience keeping up with his healthcare appointments as he had better incentives to stay committed, such as having access to the devices used for telehealth after appointments and a comfortable, private place to take his appointments.

7. **And ever since that day**: Alex and the other residents of DESC have been far healthier and more satisfied than ever before. Alex now found himself better looking forward to the appointment and slowly saw his life turn around for the better as well. His trust in the staff and service providers was stronger than ever and he continued on the path for recovery and a more secure future as he continued through their services.