

Door to Doctor

Revamping the Customer Journey

Final Design Brief

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Executive Summary

How might we get visitors from entrance to office, giving them options for thought-free and quick navigation, but also incorporating opportunities for human to human connection where needed?

Door to Doctor provides a novel and useful approach to hospital wayfinding, an often difficult and cumbersome aspect of the JHH customer experience. Addressing an explicit need, *Door to Doctor* carves a path for patients, their families and visitors to seamlessly and effortlessly navigate through a complex grid to reach their destinations. Walking through hospital doors presents a host of challenges for most, ranging from the physical to the emotional. *Door to Doctor* takes the think work out of the navigation process so that the patients and/or visitors can focus on their most pressing needs. By dividing the Johns Hopkins Hospital into eight distinct sections, *Door to Doctor* organizes the floor plan into color-coded areas, conveniently matching the distributed color-coded wristbands. Colored floor lines provide the opportunity for patients/visitors to immediately begin their self-guided, hassle-free journey to their destinations. Additionally, *Door to Doctor* capitalizes on the greatest contributor to patient satisfaction: friendly staff. By positioning a series of eight information booths around each of the eight section entry points, travelers in route are provided with individualized support and guidance. By improving the customer experience from the moment they walk through the door, *Door to Doctor* promotes patient satisfaction, system efficiency, security and patient retention, further improving the success, brand and reputation of JHH.

Design Thinking Team

Liangzhi Chen, MS Marketing



Liangzhi is currently enrolled in the Masters in Marketing program at Carey Business School with a dual BA degree in International Business Administration and Logistics Management. Liangzhi's broad knowledge base spans marketing communication and strategic marketing across the graphic design, hospitality and ESL tutoring industries. Liangzhi's skills include customer relationship management, marketing research and brand building. Liangzhi's global experience ranges from China and South Korea to the United States, providing her with a multi-lingual and multicultural background.

Will Cromarty, MBA



Will Cromarty attended New York University, where he double-majored in Politics / Middle Eastern & Islamic Studies and double-minored in Physics / Psychology. He is currently a student at the Johns Hopkins Carey Business School where he will complete his MBA in May 2017 with a dual concentration in Management / Financial Businesses. Will has worked in both the public and private sectors, and currently serves as the CEO of an antiques and antiquities firm; in his free time, he serves on the Board of Directors of a century-old Silicon Valley technology firm.

Anna Fitzgibbon, MBA



Anna is a Baltimore native with a BA from James Madison University and five years of professional experience at Johns Hopkins University. Prior to JHU, Anna worked and traveled through over 20 countries, building skill sets in teaching, project management, communications, health and wellness, adventure tourism and hospitality. Tenacious and human-centered, Anna is dedicated to building solutions to improve client experience and boost quality of life.

Qian (Sophie) Zhang, MS Marketing



Qian is from Chongqing China, a city next to the hometown of the panda. Qian completed her undergraduate degree at The Hong Kong Baptist University, majoring in Applied Economics. Prior to JHU, Qian worked as a newspaper journalist, covering stories on local city residents. Creative and engaging, Qian is adept at forming meaningful interpersonal connections and specializes in communication.

Yueru Wang, MS Marketing



Yueru is an international student from China. After receiving her Bachelors degree from the University of Wisconsin-Madison, Yueru enrolled at Johns Hopkins University Carey Business School to pursue a Masters degree in Marketing. Her international background and study abroad experience in Japan have equipped Yueru with a global perspective. Yueru enjoys traveling and loves making friends from different cultural backgrounds. As a JHU OIS Program Ambassador, Yueru aims to help international students to adjust to American culture quickly, eliminating cultural barriers in academic environments.

Research

Our process began with an in-depth look at the pain points of the customer journey, both within the Johns Hopkins Hospital setting and beyond. Our research plan was developed in response to our intense brainstorming sessions where we participated in stakeholder mapping, journey mapping, rose bud thorn and persona design. Stemming from our curiosity, our secondary research focused on hospital projects both nationally and internationally, addressing a broad set of customer and patient problems. We assessed highly-detailed plans that built solutions to hospitals' most prevalent structural problems: parking proximity, increased spatial efficiency, form aligning with function, navigation and patient satisfaction. Extending beyond the hospital scope, we followed the customer journey in the hospitality and tourism industries, namely, Disney World, to examine the tools used to streamline customer flow and improve customer experience. Better understanding the customer, in a broader scope, allowed for us to determine themes which guided our primary research focus. Our broader research base helped us to get a sense of the true pain points at each stage of the customer journey.

Funneling down to our primary research, we focused on two key areas: observations and in-depth interviews. Our observations were practices in empathy as we devised a list of visitor scenarios with various situational considerations, which were then simulated on three separate occasions at all three entrances. With a focus on the patient family member (which peaked our interest and was an outcome of our stakeholder mapping and journey mapping), we designed three interviews to better understand our specific customer journey. In order to build relevant solutions, we knew that it would be necessary to place our researched issues within the context of JHH, considering both its unique pain points and specific strength sets. For example, if aesthetic improvements are made in the lobby of a hospital in Wales, how relevant is this specific shift in our setting? If we are to apply expert guidelines, how will our unique urban setting change our approach?

Our primary research highlighted several themes, but the most prominent and consistent was that of wayfinding and navigation within the hospital. We learned this first through observations, taking note of the number of visitors approaching the front desk for directions, or the number of cars pulling up at the valet station to ask for assistance. Our interviews revealed similar struggles. Parking, we learned, wasn't so difficult to figure out. This was surprising to us based on our secondary research, where parking was a major consideration in all of the blueprints we reviewed. Getting from *a* to *b* within the hospital, however, proved to be a major pain point for our stakeholders, who often found themselves transporting their patients and "swinging by" the hospital before and after work. "Feeling frazzled" was a common theme. When we inquired about different attempts to use navigational tools (maps, signage etc.) we found that 100% of the time,

our stakeholders did not even attempt to use these. This was also surprising to us, since other hospitals that we researched invested heavily in navigational tools.

The overwhelming message from our stakeholders? *We need more humans.*

The daunting size of the hospital, combined with time limitations and a stressed emotional state all highlighted a major need: the need to go from *a* to *b*, seamlessly and without much think work. In every instance, our patient family members went directly to a staff member when they entered. Furthermore, when asked about their experience at JHH, every single piece of positive feedback was linked to staff friendliness. In some cases, our interviewees were referring to doctors and nurses, and in others they were referring to security guards. If more humans are being requested and if humans are being equated with improved experience and satisfaction, isn't our task quite clear?

Our "how might we" statement quickly developed:

How might we get visitors from entrance to office, giving them options for thought-free and quick navigation, but also incorporating opportunities for human to human connection where needed?

Stakeholders

In designing our research and customer focus, the patient family member peaked our interest. We discovered through our interviews that the time commitment, emotional toll, and logistical/planning considerations were very similar between the actual patient and their son, daughter, brother, sister, mother or father. How, then, do we improve the customer journey of the "other" hospital customer? How do we shift our focus to a stakeholder who is in-part responsible for the patient's care, and if we are approaching this from a business perspective, who is also a prospective customer?

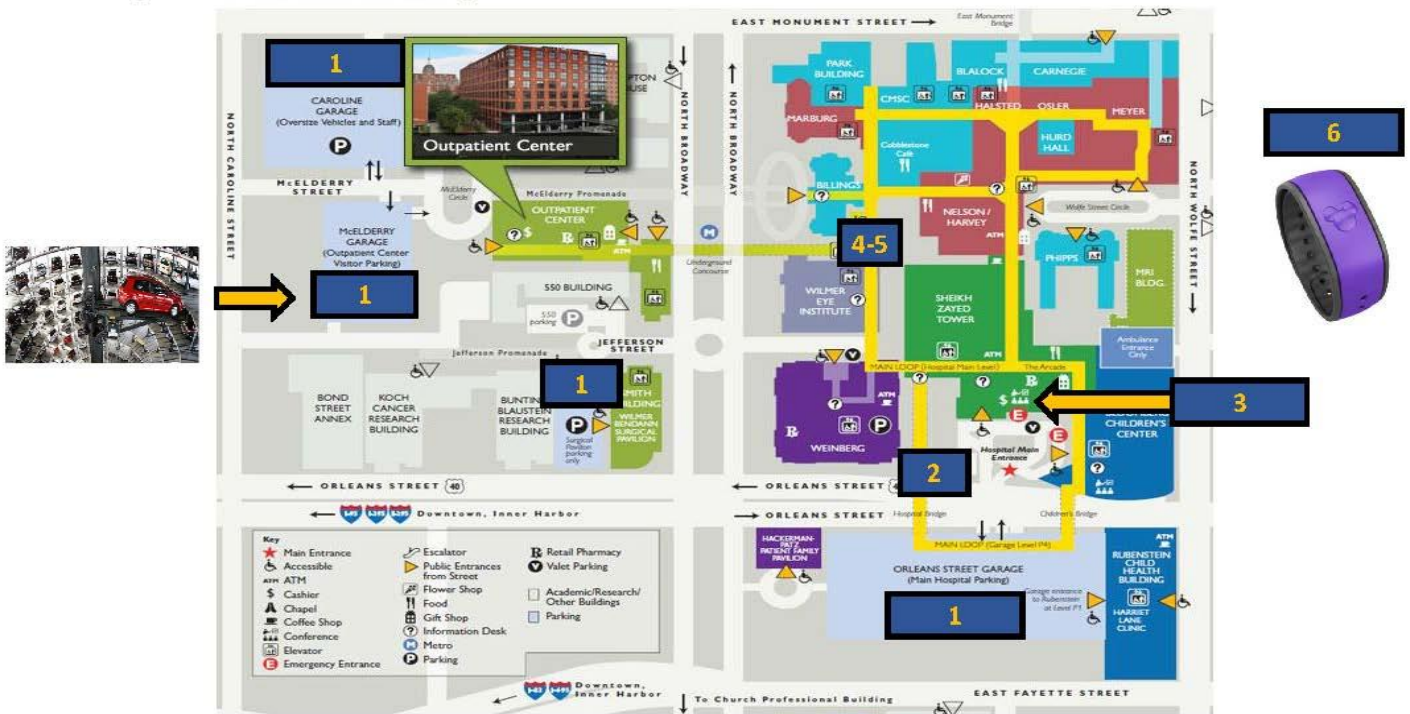
As we developed the various iterations of our prototype, it became clear that our solution impacts all customer segments of the hospital in addition to staff and practitioners. Our solution is system-based and shifts functions at the process level, therefore impacting all who enter JHH. Furthermore, our solution requires the involvement of staff, practitioners and volunteers in order to achieve success. *Door to Doctor* promotes a cultural shift within the hospital, encouraging a greater level of helpfulness by actually making it easier and quicker to make contact and assist with navigation. This cultural shift therefore has the potential to capitalize on those elements that are proven to enhance customer satisfaction.

Our model more broadly impacts patients, visitors, staff and practitioners. University stakeholders, medical equipment and pharmaceutical representatives, contractors and police officers are just a few of the stakeholders under the broader umbrella of "visitor." Likewise, "staff" encompasses everyone from security guards to volunteers, professors, speakers and café workers. Our solution was built specifically with the patient, patient family member/friend, volunteer and hospital staff member in mind. As our prototypes stemmed from our targeted pain points of wayfinding and navigation in times of stress and distress, our main focus is our segment who needs to get from *a* to *b* quickly, and our stakeholders who can help them to get there. Even more specifically, our model targets and considers all patient and visitor sectors: all nationalities, ability levels, ages and conditions.

Revision History

The following pages visually represent our prototyping and solution-building process.

Stage One: The Complete JHH Customer Journey



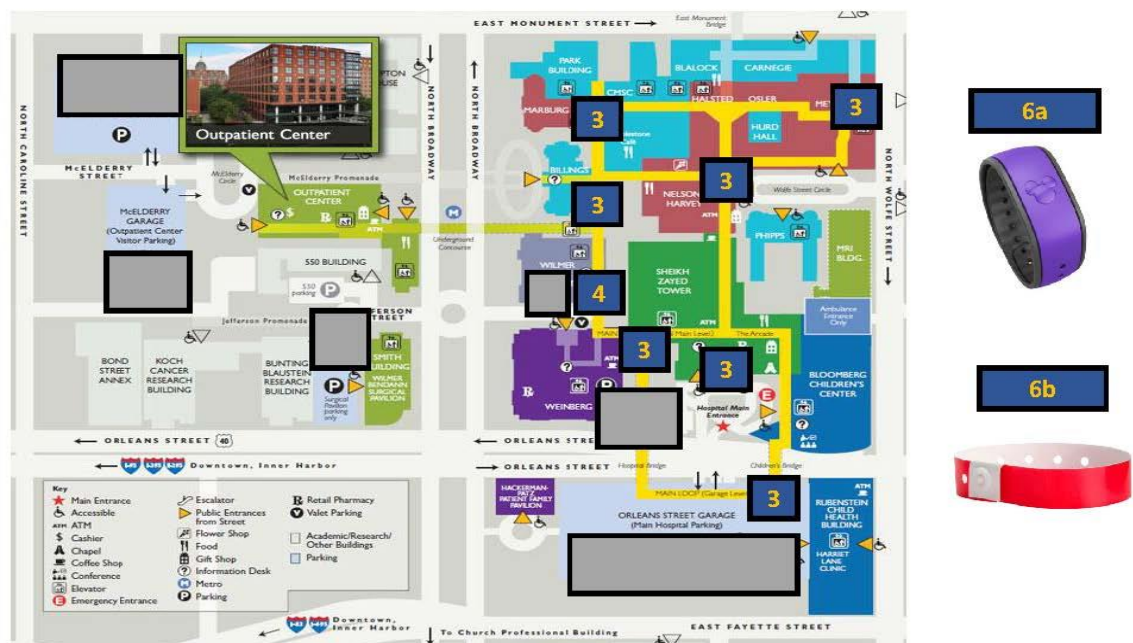
Stage 1

In stage one, we began with the complete customer journey. One major component of this early model was patient arrival, based on our observations at the Zayed valet parking entrance. We developed the idea to transform JHH parking into automated parking lots (similar to the ones in the image, which currently exist in Japan). We believed that this would help to cut down on circle traffic (see *number one*). Additionally, we planned to increase the number of valet station at the entrance from one to three attendants (see *number two*). In order to create a human-centered focus, we wanted to hire a staff of escorts to individually guide each patient to his/her appointment upon arrival (see *number three*). Also included within this arrival stage were food and drink offerings from the local café.

To assist with patient mobility and to cater to any specific patient/visitor travel needs, we developed two different transporting services: a wheelchair-accessible shuttle with a route around the main loop and a Segway rental station (see *numbers 4-5*). Finally, stage one encompassed a “smart band” for each person entering the hospital, which would not only contain patient data, but also customer preferences (favorite food, favorite way to pass time) so that practitioners could improve their customers’ experience. This wristband would also notified the patients’ office that they were in route.

Stage Two:

Refocusing and Considering Financing and Logistics



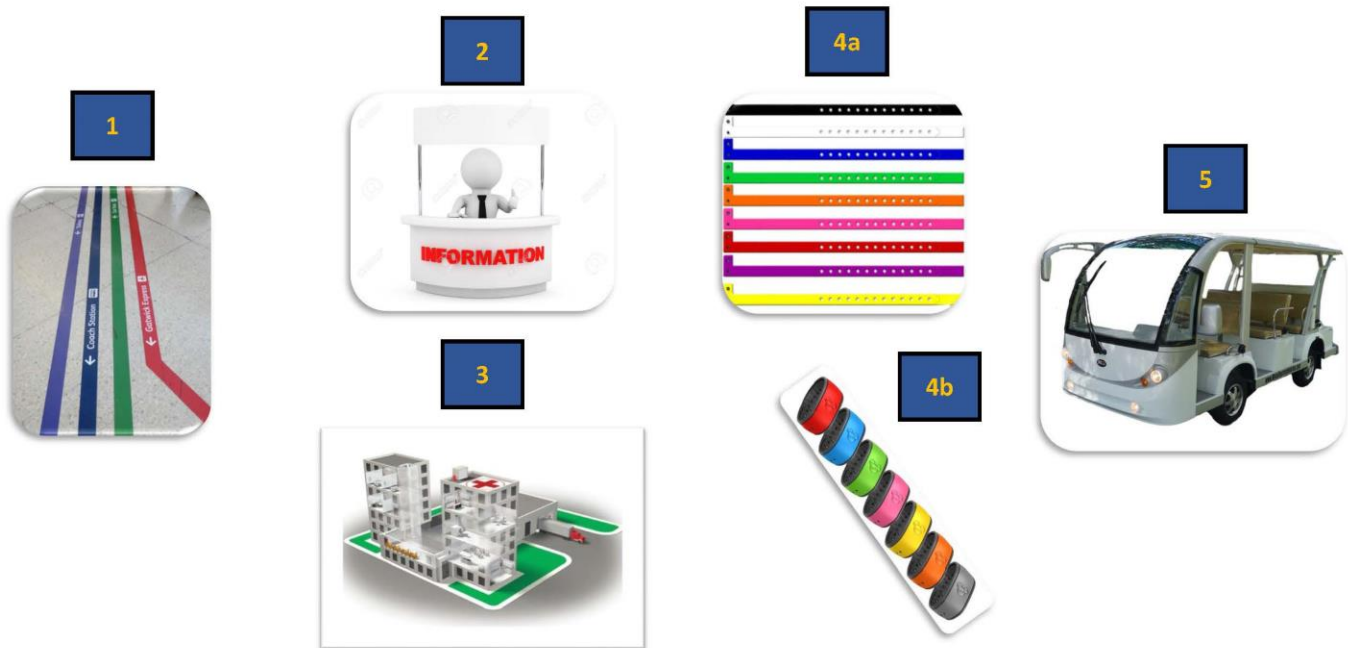
Stage 2

Upon reflection, we realized that our stage one ideas were quite ambitious. Not only did we need to focus on the specific needs expressed in our primary research, but we also needed to consider the financial, spatial and logistical barriers. For these reasons, we eliminated solutions that catered to the areas outside of the hospital structure. Parking and arrival were scrapped from our prototyping, and we returned to our original “how might we” statement. There was a consensus among the group that the escort service was needed, useful and novel. Based on our observations, however, the volume of people entering the hospital hourly creates a staffing issue if we are to escort each and every person. Our escort service was then shifted to an information desk service, with information desks placed every 300-500 feet. This would strike a balance between our solution to ensure a consistent staff-to-visitor touchpoints and the current state of complete self-navigation (see *number three*).

We wanted to give visitors and patients options for transport and movement. After considering the Segway idea, we determined that the safety and liability issues were too great. Instead, we decided to focus on staff-controlled transport services, and proceeded to consider the 5-6 passenger shuttle with wheelchair access around the main loop (see *number four*).

Finally, stage two involved thinking through the wristband. We decided that it did not make financial sense (and would lead to excess waste) for us to pursue a smart band for each and every hospital guest. Instead, we decided to reserve the smart bands for patients only. These bands would still contain patient information and preferences, but we would add an additional feature: the ability to request an escort from your specific department. In other words, once you scanned in at the entrance and your department was notified of your arrival, you could then press a button to request a staff member to meet you at a designated point on your journey. This enabled us to “bring back” our escort idea, but at a more feasible level. For non-patients, we decided to keep the wristband idea, but opted to shift to a more simplified and cost-effective version (similar to what is distributed now). The difference is that the new bands would now contain a QR code which would, when scanned, direct visitors to a website specific for infrequent visitors. The website would contain a number of helpful tips including information on parking, directions, places to eat, Baltimore spots, and planned workshops on caretaking, self-care, etc.

Stages Three & Four: Door to Doctor Revamped



Stage 3

In stage three, we found ourselves asking the question: how will people know how to get to the information desks? How will they self-guide to start, in order to reach the people who will be able to help them on their journey? It was from this question that color mapping was born. We decided that buildings could be represented by different colors. Visitors and patients would be able to follow associated colored lines on hospital floors in order to reach their destinations. Along the way, information desks would be placed at key intersections so that hospital staff could assist in wayfinding. The wristbands, we decided, would be color coded according to destination. This would not only streamline the entire navigation process, but would encourage a culture of helpfulness. For example, if a staff member saw a visitor with a yellow band who appeared to be lost, he/she could easily identify where that visitor needed to go, and point them in the right direction. Additionally, we hoped that this system would incentivize all visitors to check in at the front desk for security purposes, since a visitor would need to receive a colored band to know where he/she needed to go.

Through this process, we also planned to implement a volunteer cycle, possibly incorporating information desk staffing with university course requirements or extra credit. Local high schools would be another great source for volunteers, since many Baltimore high schools require a

minimum of 100 community service hours for graduation. A consideration of ours was volunteer training, which would be a periodic investment to consider.

In stage three, the band structure and functions carried over from stage two, along with our main loop shuttle strategy. Our final shift in stage three included the addition of a 3D map at the entrance (see *number three*). This map would be interactive and would provide the visitor with another self-guiding tool to become familiarized with the area before setting off on the appropriate colored line.

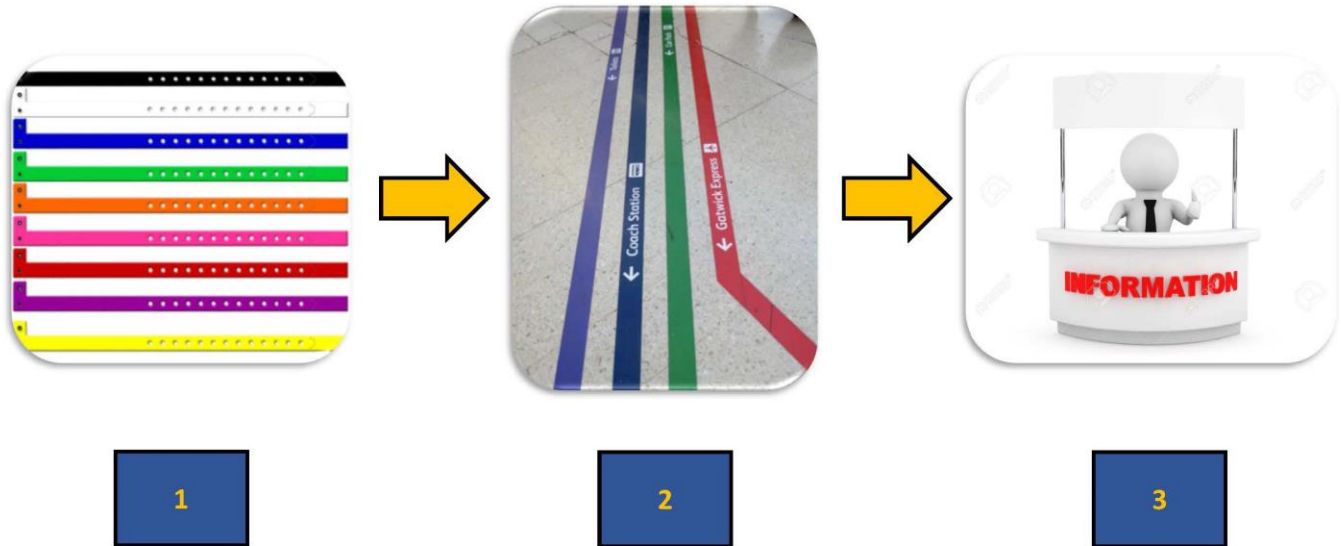
Stage 4

As we progressed in stage three, stage four gave us the opportunity to firm up our plans in preparation for our class seven presentation and feedback session. We discovered a series of boundaries and challenges as we revamped our prototype. How many colored lines should we have total? Does it make sense to color code by building, given how many buildings exist? How many information stations do we really need to have, and where should they go? How many shuttles should we have circulating at all times? How can visitors with color or vision impairments navigate effectively?

The details of our class seven prototype are as follows (see stage 4 graphic):

1. We would have a total of eight lines extending from entrance to destination. Destinations would be broken down by area: north, south, east, west, northeast, northwest, southeast, southwest. All lines would have both the color name and direction name spelled out on them in writing.
2. There would be a series of eight information desks- one at each directional crossroad. Volunteers and staff would undergo training to learn the layout.
3. There would be one digital, 3D map at the entrance, next to the arrival desk. This would provide another tool for visitors who wished to understand where they were in relation to where they wanted to go. This map would be self-directed based on department, floor and building.
4. As before, there would be two categories of wristbands: patient and non-patient. The non-patient bands would be disposable, recyclable and would contain a QR code directing visitors to a site with helpful information and tools. The patient bands would be "smart bands" and could be scanned at the entrance upon hospital entry. These bands would contain a. patient data, completely confidential and encoded if the band was misplaced, b. patient "customer" preferences, c. a feature ensuring offices were notified upon patient arrival, that would also escort patients if requested.
5. We estimated that there should be three shuttles, each seating 5-6 passengers, circling the main loop at all times.

Stage 5: The Final Product



Stage 5

After class seven, our group determined key focal areas for next steps, along with necessary future research. We had many ideas, and knew we would have to hone in on only one or two. Given that the smart bands, 3D map and shuttles had the greatest number of concerns, and given the potential impact and feasibility of our broader navigation system, we decided to focus on three main concepts: 1. One type of color-coded, plain wristbands (with colors written out also), 2. Color-coded navigation lines to the eight designated hospital sections (also with colors written out), and 3. Eight designated volunteer information stations at key intersections. Novel and useful, we believed our system addressed the concerns highlighted in our primary research while providing a solution that could be easily implemented.

Our major areas of research before devising the final prototype included:

1. Determining how patients can get from section to section efficiently (and not just from entrance/exit to section and vice versa).
2. Understanding our color scheme, the potential meaning it holds for various cultures/international groups and how to create an inclusive, cross cultural system.
3. Researching volunteer programs: how to develop a large volunteer base, conduct training and retain workers.

Prototype

Our final prototype takes into account the feedback that we received in week seven. Below are the shifts that we made from stage five in order to refine our product.

1. In addressing the first area of concern, moving from section to section within the color-coded framework, we plan to include a map at each section entrance (near the volunteer information station) which will give instructions for “following the colors” in order to reach an alternate section. This idea is modeled after city subway lines, where, for example, signs would say, “To reach x location, follow x color to x color to x color.” In addition to the map at each section, colored arrows contained within the colored lines at section entrances will help to steer travelers toward their next destination. Finally, we plan to put a “legend” on each bracelet, associating each section with its correct color.
2. In researching various possible color schemes, we learned that there are many colors in our existing prototype that could contain negative meaning/connotation for a cross-cultural visitor and patient base. For these reasons, we conducted research and chose the eight following colors to be represented by the eight sections of our hospital framework (N, E, S, W, NE, NW, SE, SW):

Navy (Hopkins color)

Sky blue (Hopkins color)

Gold (Hopkins color)

Brick Red (Different from red, because red is considered dangerous in Muslim culture)

(Olive) Green

Brown

Gray

Yellow

Our color scheme is based on a selection of tones that 1. In-part align with the Hopkins brand and 2. Are more sensitive to meanings across cultures.

3. We decided to reexamine our volunteer program piece. JHH has a large volunteer base, complete with a volunteer application process and a series of volunteer benefits (excellent for volunteer retention). Using the existing infrastructure and recruitment strategies, our team’s final prototype works to expand on this well-established system. As such, our specific program will institute a bi-yearly recruitment and training phase (every fall and spring) with the aim of recruiting a base of 75 volunteers by year one to rotate through the eight different information booths between the hours of 7am and 11pm, Monday through Sunday. If we estimate three volunteers per booth, per day (roughly), then we estimate a total of 24 volunteers needed daily. With 72 volunteers (we round up to 75), we can

estimate each volunteer working 1-2 days a week. Expanding on recruitment, we recommend meeting with university leadership to institute semester-long volunteering among university students, for extra credit or as a requirement in courses.

To simplify and streamline the training process, we propose a half-day course, welcome packet and map, and a song/video which will provide memory tricks for learning the various colors and associated buildings. Working in conjunction with the hospital and HR, we will further develop these training strategies for the new system.

Our final prototype includes 1. A series of eight colored floor lines (with colors and directions written on them) guiding navigators to any of the eight hospital sections. 2. Color-coded wristbands complete with colors spelled out and building "legend." 3. Volunteer information booths at each of the eight section entryways from the main loop. These sectional crossroads also include a posted map with directions to alternate sections, and floor markers (embedded within the lines) to serve the same purpose.

Budget and Timeline

We pride ourselves on creating a useful and novel solution; one that can be easily implemented with limited funding. In researching similar floor-marking projects on NBA basketball courts and in gymnasiums, the typical price for all equipment and labor is \$3 per square foot. JHH is a massive piece of property, however we would just need to focus on the square footage of the main loop and a few of the adjoining paths. Signage and eventual maintenance would need to be a cost consideration as well. We estimate \$300-\$500 per sign at each of the eight information stations.

While JHH uses wristbands, our new system would require additional type and a different assortment of wristband colors. As a result, we would have to account for a premium cost but would not need to factor in a different budget line item. Depending on the type of wristband and quantity ordered, color-coded wristbands with text included can start from \$.01/piece. Our group would need to learn how many wristbands are used per day so that we could shop manufacturers and distributors, confirming any additional cost.

Finally, our greatest cost would be the installation of eight information stations and the hiring and training of our volunteer base. Depending on the size, information booth installation can cost anywhere from \$1K-\$2K. Hiring and background checks, training, manuals and uniforms for volunteers can average anywhere from \$50-\$100 per volunteer. A key piece of this, then, would be a broad volunteer base and volunteer retention, which would reduce costs.

Our total budget, then, would be \$63K to start. This would enable us to install the line system (estimated one mile of square footage at 5,280 feet) for \$15,840 (\$3 per square foot). We can estimate \$4000 for signage at each of the eight stations. We are estimating a \$20,000 increase in

wristband prices for the first year, overestimating what we think is needed but working to be conservative until we have more information. We are estimating a conservative \$16,000 for the eight information station installations. Finally, we would like to aim for 75 volunteers in year one, estimating an onboarding and training budget of \$7,000 to be conservative.

Our timeline for this project is as follows:

- By July 1, 2017, we plan to propose our idea for 2018 fiscal year funding, undergoing testing stages, teaming with JHH.
- By the fall 2017, we propose ongoing discussions and further consultation with HR, the business office, volunteer recruitment, university/hospital leadership and possible vendors in order to map out next steps and firm up budget projections.
- By January 2018 we plan to implement construction for the installation of the color-coded navigation system, wristbands and information booths.
- By April 2018, we plan to begin our volunteer hiring and training, onboarding to begin by July 2018. We hope to bring on 30 committed volunteers, shifting to a fall/spring recruitment and training schedule moving forward. By Fall 2018, we plan to have a solid base of 75 volunteers. Staff will be included in the initial training schedule.
- In July 2018, we plan to launch our new wayfinding system, incorporating a university-wide medical campus soft launch event and patient information sessions throughout the remainder of the summer.

Dependencies & Limitations

Our project depends first and foremost on funding (as listed above) and JHH leadership approval. Communicating both the need and value from a patient satisfaction and retention standpoint will be crucial. The various stakeholders involved in the approval process include HR, Legal and Business Offices, possible vendors and contractors, and volunteer recruitment (including university leadership). Our timeline projection is dependent on the approval and successful communication with these various constituents.

We must also consider the materials used to construct the wayfinding system. Our research points to materials used in athletic settings, but the safety implications of any chemical components will need to be more fully researched. Similarly, patient/space disruption will need to be considered throughout this process.

Our plan will also depend on unknown financial considerations such as wristband premiums, staff training, and the feasibility of a larger volunteer program (resources, training capabilities etc.).

Additionally, there are some legal issues to consider when onboarding and training volunteers, and when making any structural alterations within a medical setting. We would need to more fully

understand volunteer liability before instituting our program. Fire regulations, traffic flow, permits and health/safety requirements will need to be well-researched before the installation and restructuring phases.

Finally, we are limited in our expert consultation. We would need to meet with field experts before taking the next steps of the proposal process.

Measures

Our solution stems from a need to eliminate the stress and think work involved in the hospital navigation process for patients, their families and visitors. Ultimately, a successful solution will improve two different areas: 1. Patient/visitor satisfaction and 2. Patient/visitor retention. Patient satisfaction will prove more difficult to measure, but will also complement our second criteria, which we believe can be measured quantitatively.

In order to accurately measure patient satisfaction, we will need to use more qualitative measures. Our team proposes that we distribute a voluntary survey and host a series of focus groups. Key participants include patients, staff and patient families in the summer 2017 in order to get a baseline assessment. Following the installation of our new system in 2018, we recommend redistributing the survey and holding another series of focus groups in order to reassess the patient experience. In researching methods, we propose 10 questions or fewer, targeting 200+ patients and estimating a 10-20% response rate. We recommend a continuing assessment every six months for the next three years. We also propose integrating feedback measures into patient/provider interactions, provided they comply.

Quantitative measures will be essential in order to measure the ROI of our solution in the long-run. This will be an important piece of securing future funding. Measuring both patient recruitment and patient retention over time will be a much-needed component of any solution. In order to do this, we will need to mandate a daily count of patient and visitor hospital entry (this can be regulated via wristband distribution). Additionally, we will need to determine a method for measuring the length of patient retention. What percentage of patients have been patients for over 1 year? Over 5 years? Over 10 years? How many new patients join JHH yearly? Getting a baseline assessment in 2017 that can be revisited yearly would be ideal, but would depend on JHH systems and data gathering capabilities. We propose teaming with JHH research teams in order to begin measuring these basic analytics which will enable us to measure the impact of our solutions in a quantifiable way.

Conclusion

Through extensive primary and secondary research, our team conducted a thorough review of the customer experience, both inside and outside of the hospital setting. By performing observations and interviews, we honed in on a particularly significant pain point within the patient and patient visitor customer experience. Wayfinding from the point of hospital entry to destination, we found, leads to increased confusion, customer dissatisfaction and unwanted stress. After many ideation and prototyping stages, our novel and useful solution iteration addresses that need while capitalizing on the importance of the human connection in patient satisfaction. *Door to Doctor* is the next best thing to providing a personal escort for each person who enters JHH. Enabling visitors to seamlessly and effortlessly self-guide, our color-coded system includes main loop floor lines with coordinated wristbands, each path leading to eight of our designated hospital areas. More cost effective and easily implemented, our proposed budget and timeline break down the project's next steps over the upcoming 12 months. While our methods and processes will ultimately impact most, if not all hospital stakeholders, our primary "how might we" statement narrows in on the patient and patient family. While requiring stakeholder approval, financial support and a more in-depth look at potential barriers and considerations, we believe that our final prototype will lead to our ultimate goal of improved patient/patient family satisfaction and retention. Our team plans to measure the success of our systems over the course of the next three years, through both qualitative and quantitative methods. We believe that our solution will replace feelings of helplessness/lack of control with independence; it will replace isolation with connection. It will ultimately stimulate a culture of helpfulness and support that is much needed among those undergoing a hospital process. *Door to Doctor* takes the think work out of the hospital experience, while injecting the human touch back in it.