HANDSOME *is helping build StrokeApp*

Handsome Case Study

ENHANCING PATIENT & CAREGIVER EDUCATION THROUGH THOUGHTFUL DESIGN

BACKGROUND

Each year, approximately 795,000 people in the U.S. suffer the debilitating effects of stroke. Studies show that more than 25% of stroke victims are readmitted to the hospital within 30 days. Of these readmissions, 90%, or over $17 billion in Medicare costs, are considered avoidable.

In the winter of 2012, Handsome was approached by an experienced team of entrepreneurs and doctors to help design and develop a mobile application to reduce readmissions of this patient population by re-imagining how inpatient education is delivered.

This whitepaper provides an overview of Handsome's product strategy, our design approach to address the core problem—while keeping in mind key constraints—and examples to highlight the application's progression, from diagrams and models to full design.

PROJECT OVERVIEW

Handsome was approached by the client to design a minimum viable product to help stroke patients and their caregivers understand: what has happened to them, what's happening now and what's going to happen next on their road to recovery. This information would be delivered to the patient/caregiver via a tablet application that could predict where the patient was in terms of treatment based on: the patient's stroke type, the time between stroke onset and treatment, pre-existing conditions and severity of stroke.

The client team viewed this application as a beach-head product that would evolve into a larger technology solution for enabling effective communication between caregiver/patient and medical providers.

CORE PROBLEM

Research shows the majority of stroke readmissions are due to:

- *Problems with continuity of care. Patients do not adhere to prescribed treatment or seek appropriate care post-hospital discharge.*

- *Infections or complications that are not treated early on and instead are addressed only after a patient visits the emergency room.*

- *Slips, trips and falls.*

- *Another Stroke.*

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1. Lichtman, Judith, et al. "Predictors of Hospital Readmission After Stroke: A Systematic Review." Stroke. 41.11 (2010) Accessed via: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3021413/

2. Term coined by Frank Robinson to describe the product version that a team can release the soonest that competes, sells and does well enough to succeed into its next release.

PRIMARY GOALS

From secondary research and primary design research (described in the following section), Handsome and the client team determined the biggest opportunities to change the above outcomes lie with helping the patient and/or caregiver:

Understand what happened. Our research confirmed, that knowledge truly is power. But information needs to be given to patients in a way that they can understand. Otherwise they will develop a schema that sees hospitals and medical treatment as things that are too confusing to engage with.

Increase patient agency. Patients and caregivers who take ownership of their treatment and recovery have better outcomes. Being able to know and advocate for the type of medicine and treatment that are prescribed by hospital personnel during the first 30 days of recovery is critical in preventing readmission.

KEY CONSTRAINTS

ACCESSIBILITY:

On average, the people who are at most risk for readmission have poor general literacy and health literacy skills. All copy would need to read at a 4th grade level, but with the ability to expand based on the users' education, literacy and desire to learn.

FLEXIBILITY:

Given the differences between hospitals, the app would not always be given to the patient at the same time or in the same section of the hospital. We needed the application to make sense, whether it was given to a patient in the ER or in the Stroke Stepdown Unit.

RESEARCH INSIGHTS

Our solution was based on our design research: the goal was to understand interactions between medical staff and patients/caregivers during the first week of initial admission. Doctors, nurses, caregivers and stroke survivors were interviewed; and through rigorous synthesis of all audio and video interview material, the design team identified the following insights that would drive the form and function of the application.

◆ **INFORMATION IS A SOURCE OF CONTROL** ◆

"[In the emergency room] when we call a code stroke, things get scary and dramatic very fast. The only way to give patients and caregivers some feeling of control in an out-of-control situation is by providing information about what is going on."

-ER Nurse

◆ PERSONAL CONNECTION WITH PROVIDERS CAN NEVER BE FULLY REPLACED ◆

"Getting to know my nurses and therapists was very meaningful for me. Some of their personal stories of why they chose their profession brought tears to my eyes. It made me want to do what they told me."

-Survivor

◆ I WILL REACH OUT FOR HELP IF I KNOW I WILL BE TAKEN SERIOUSLY ◆

"Some doctors, they just look past you."

-Caregiver

◆ THE CAREGIVER'S STORY BECOMES THE SURVIVOR'S STORY ◆

"I remember going to the bathroom and lying down, and I don't remember anything after that for months."

-Survivor

◆ FIND LITTLE MILESTONES WORTH CELEBRATING ◆

"We were so excited when he only needed two nurses to help him sit up."

-Caregiver

Key design criteria that surfaced, as a result of the research phase, included:

HELP USERS QUICKLY UNDERSTAND THEIR STORY

When someone has a stroke, the patient's life, as well as friends and family, will never be the same. The hospital is the first place where caregivers start to make sense of what this unexpected life event means for themselves and their loved one.

Oftentimes this attempt to incorporate the event of stroke into their understanding of their personal story is difficult because the hospital is such a chaotic environment and the "literature" given to patients' requires a significant amount of cognitive resources to consume and make sense of.

With PRN, we wanted to create an experience that users could walk through that felt like a simple story. This "story" would be crafted to specifically address caregivers' key questions and concerns. To do this we put EXTREME focus on helping caregivers answer the questions: what happened, what's happening now and what's happening next.

The application would occasionally check in with the patient to help answer new questions if they had moved to a different part of the hospital. We tried to encourage our client to make all information presented clear and concise and written at a sixth-grade reading level.

SHOW A PATH TO MASTERY

We needed our application to be accessible to everyone. But we knew some of our users would want to become masters on the subject of stroke. So after providing an easy pathway for caregivers or patients to understand their story, we created a simple way for those wanting to know everything about stroke to learn more.

PROVIDE CHOICES, DON'T ASK QUESTIONS

When a stroke happens, caregivers are bombarded with questions as soon as they walk through the door so that doctors and nurses can select the best course of treatment.

Then they are bombarded with questions from family members, who want to know what has happened. We wanted to give users a break from the questions and thus embraced the above design principle because we know with technology users prefer to choose where they go or have the technology decide for them rather than be grilled with a lot of questions up front.

*Personal RN*

PRODUCT DESIGN

YOUR ER HOME

The home page a user sees for the Emergency Room shows their progress through the main sections: What's Happening, What's Happening Now and What's Happening Next. This helps them understand their story as it relates to what they are currently experiencing in the specific section of the hospital.

LOCATION

Depending on the location of the stroke, its severity, comorbidities and time of onset, the app's algorithm would determine when to check in with the caregiver to see if the stroke patient has moved locations. If so, the app would give users the option of learning the next part of their experience in the following section of the hospital.
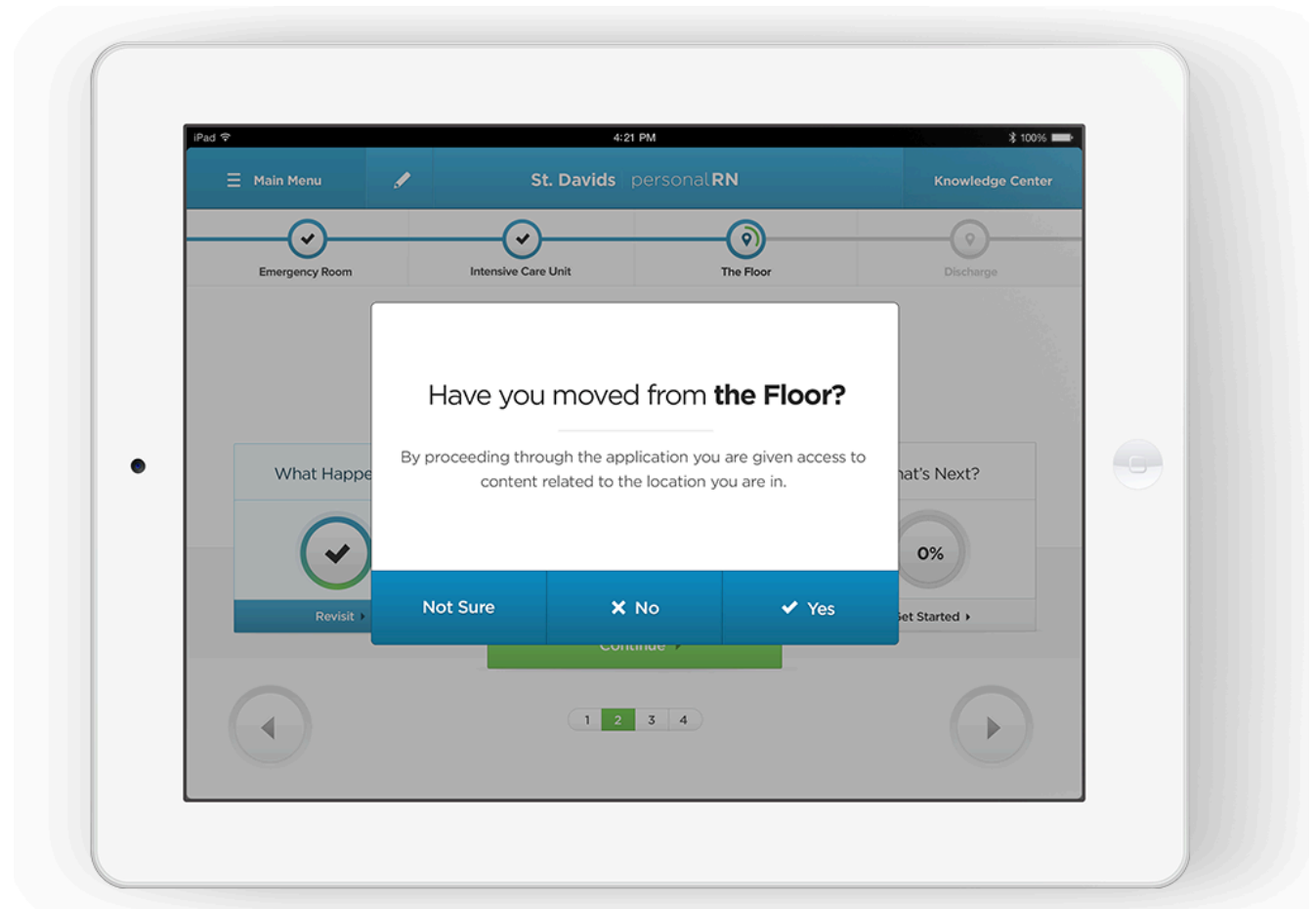
CONCLUSION

Designing a tool focused on a stroke patient's recovery is a serious design challenge that requires deep analysis and thought to ensure the information provided is relevant, understandable and easy to follow. By implementing our end-to-end design and development practice, Handsome's client was able to create a digital experience that catered to the needs of everyone involved in the recovery process.

Special thanks to our client team including: Kourosh Parsapour, MD MBA and Stephen Cramer, M.D.