THE APPLICATION OF A PATIENT JOURNEY MAP FOR IMPROVED PATIENT CENTERED CARE TRANSITIONS

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21ST CENTURY HEALTHCARE

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Abstract

Healthcare is a complex and dynamic web of systems including numerous institutions and healthcare providers. In the US, there are continuous effort to improve of the quality of care while reducing costs. Currently the improvement methods in healthcare are quantitative and evidence-based. Furthermore, they are very provider-centric in that they overlook the patient perspective and focus on making the care delivery processes optimal, efficient and cost-effective. While these methods are effective, they don't capture the "noise" that encompasses patients' values, preferences, and psycho-social issues. Not addressing such factors may affect the quality of care they receive. An aspect of care where there is more "noise" is care transitions.

In the context of care transitions, where a patient moves across different systems, this thesis aims to be patient-centric in its approach to address care transitions. The thesis proposes the application of a patient journey map as one way to align and coordinate multi-disciplinary healthcare teams in a quality improvement workshop to the patient. Based on design research methods, the tool was co-created with the project partners, such that it could be sustained in the future without any design involvement. In addition to the patient perspective, the patient journey map also provided a shared mental model of the current state of care delivery. It revealed the breakdowns in care transitions and allowed the teams to work collaboratively towards addressing the same. The thesis describes in detail the iterative development and training for creating the maps and the successful deployment of the maps in the workshops.

Keywords

Co-design, Boundary object, Design research, Service design, Integrative design, Patient journey map, Patient-centered, Care transitions, Collaborative Quality Initiative



INTRODUCTION



Healthcare is a wicked problem. Unlike tame problems, wherein the problem can be clearly framed, wicked problems are difficult to define. Furthermore, the problem definition changes depending on who frames it (Rittel 1972; Rittel and Webber 1984). Healthcare is a dynamic web of systems including several institutions and practitioners. In the US, improving the quality of healthcare while reducing costs is becoming an important issue to tackle (Dworkin 2013; Peterson 2016). An area of focus, for example, is the cost of readmissions.

The annual cost to Medicare for unplanned, avoidable readmission to the hospital within 30 days of discharge is $17 billion (Jencks, Williams and Coleman 2009). One of the reasons is ineffective transitions of care. “Transitions of care refer to the movement of patients between health care practitioners, settings, and home as their condition and care needs change” (The Joint Commission 2012). Several studies have shown a correlation between unsuccessful transitions of care and 30-day readmissions for a range of conditions (Benbassat and Taragin 2000; Ashton, et al. 1997).

Project Context

To understand and improve transitions of care, Blue Cross Blue Shield of Michigan (BCBSM) funded a new collaborative quality initiative (CQI): Integrated Michigan Patient-Centered Alliance in Care Transitions (I-MPACT). CQIs are partnerships between BCBSM, the coordinating center (CC) overlooking the initiative, and participating hospitals and physicians. Typically, only hospitals or only physician organizations (POs) participate in CQIs. I-MPACT being the first of its kind among the CQIs, integrated hospitals and POs along with patients to address care transitions. As a way to onboard the newly recruited hospital and PO “clusters” on the project, I-MPACT organizes “kick-offs”. Typically, the kick-off for a CQI is 6-hour event, held in a ballroom, with a series of PowerPoint presentations. It is very prescriptive in nature in that each cluster shares data and best practices to improve medical outcomes and reduce costs (Blue Cross Blue Shield of Michigan).

Integration of Designers

I-MPACT program director, Lakshmi Halasyamani M.D., at the coordinating center (CC) wanted to run the kick-offs differently in that she wanted to it to be a collaborative environment where the different

stakeholders came together and worked as a team to understand and address the issues within care transitions. Having previously attended a design charrette on Ebola at University of Michigan's Stamps School of Art and Design in 2014, Lakshmi recognized the value that designers brought by bringing in their human-centered research methods and perspective to address the issue. She saw the quality of interaction and outcomes that resulted from designers developing and participating in a multi-disciplinary charrette. She reached out to the 1st cohort of designers in the new Master of Design (MDes) in Integrative Design program at Stamps School of Art and Design in 2015 to:

- Gain insights on care transitions from the patient perspective and share it with hospital and PO clusters.

- Develop and run kick-offs that are interactive and collaborative, and allow for equal participation among the clusters (including the patient, physicians, nurses, and other hospital members) to identify issues and interventions within care transitions.

Problem Statement

In the context of the wicked problem of care transitions, the patient is the one constant in the midst of many variables, including the different practitioners and institutions. However, the patient may not always know enough about their own care, thus impeding their own care. Some of the root causes for ineffective care transitions, which in turn can cause readmissions, include inadequate patient education and comprehension, ineffective communication within and across institutions and lack of accountability (The Joint Commission 2012; Horwitz, et al. 2011). Despite the evidence, healthcare providers may inadvertently overlook the root causes of ineffective care transitions. Staying focused on their own tasks and following protocol to provide the best treatment to the patient, healthcare providers often do not see the patient beyond the diagnosis and medical treatment.

To add to that, the current improvement approaches to quality of care also support the provider-centric outlook. Typically, the healthcare quality improvement methodologies are adopted from the manufacturing industry. Approaches like Lean thinking, Six Sigma, and Plan-Do-Study-Act (PDSA) are applied to increase procedural efficiencies, improve medical outcomes, and reduce costs, and very successfully do so. Examples of improvement areas where such approaches are applied include reducing infection rate, better pain management, and more timely medication administration (Nicolay, et al. 2012). While these approaches have been proven to be effective in improving the quality of care, they are very provider-centric. This can be illustrated by the type of interventions implemented: reducing the infection rate by correct use of antibiotics and monthly report and control charts; managing pain using fishbone diagrams and more patient- controlled analgesia (PCA) devices; and administering medications in time through process analysis and education of teams and the pharmacy. The interventions indicate the lack of patient perspective or voice, and involvement in their own care.

When looking at improving the quality of care, in addition to focusing on the procedural and medical advancements, understanding the patient beyond just their medical diagnosis and treatment can be equally important. Through placing patients in the center, and understanding care transitions from their perspective, the healthcare providers can understand how patients interact with the service, what challenges they face, and get to the underlying cause for those challenges. Currently, the providers are used to looking at the problem from a certain perspective, which primarily focuses on costs, protocols and procedures. How can we enable them to be more patient-centered? How can we share with them the patient perspective in order to provide a better and more complete view of the problem from multiple perspectives?

Research Aims

In working with the I-MPACT CC for the development of their kick-offs, this thesis looked at integrating design research methods within the project to identify and answer the following:

- How might we allow individual members of a cluster to build shared mental models of transition of care?

- How might we coordinate and align members of a cluster to the patient perspective?

- How might we elicit insights to generate collaborative problem statements and potential interventions to improve care transitions?

- How might we create a more collaborative environment during the kick-off to reduce inherent hierarchies within healthcare roles?

Using an integrative design approach, this thesis discusses the development and integration of a design method based tool: the patient journey map to visualize patients' experience of care transitions. The thesis is divided into four sections. First, the Contextual Review section discusses care transitions, current healthcare improvement methodologies, and application of design in healthcare. Second, the Methodology section situates the project in an action research framework and explains the phases of the project that led to the development of the patient journey map. Third, the Results section describes the tool and its application in the kick-off. Lastly the Conclusion section elaborates on the limitations, future work, and discussion on the patient journey map.



CONTEXTUAL REVIEW



Collaborative Quality Initiatives (CQI) and Quality Improvement (QI) Methodologies

Institute of Medicine (IOM) has put a lot emphasis on the quality of healthcare in the US, and encouraged the healthcare institutions to focus on its improvement in order to provide safe, high-quality care. IOM defined quality as “The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”

(National Academies 2013). Through two of the IOM reports in 1999 and 2001, they established the need for quality improvement in the US (IOM 1999; IOM 2001). Several institutions run quality improvement initiatives which comprise of "systematic and continuous actions that lead to measurable improvement in health care services and the health status of targeted patient groups" (HSRA 2011).

Blue Cross Blue Shield of Michigan (BCBSM) funds quality improvement initiatives they call Collaborative Quality Initiatives (CQIs). The first one started in 1997, and now BCBSM funds 20 CQIs. With a coordinating center leading each program, BCBSM partners with Michigan hospitals and physician organizations (POs), to address common and costly areas of medical and surgical care (Blue Cross Blue Shield of Michigan). Examples include hip and knee replacement (MARCQI), bariatric surgery (Michigan Bariatric Surgery Collaborative), and blood clot prevention (MAQI2). In these CQIs, participating hospitals and POs collect, share and analyze data, and then develop interventions to continuously improve outcomes and reduce cost. As stated by BCBSM, five of the longest running CQIs have saved roughly $793 million in costs.

Typically, quality improvement methodologies in healthcare have been adopted from the manufacturing industry. Six Sigma, Lean thinking, Plan-Do-Study-Act (PDSA) (Nicolay, et al. 2012) are some of the methodologies that aim to minimize or eliminate errors, variability, and wasteful steps in order to reduce costs and improve outcomes. They are very effective for processes that are repetitive and can be standardized, for example reducing waiting time, increasing bed availability, and improving surgical procedures (Nicolay, et al. 2012; Gijo, et al. 2013). However, there are other aspects of care that cannot be standardized. "Compared to manufacturing processes, healthcare service processes are subject to more noise or uncontrollable factors, such as sociological factors, personal factors etc. The measurement of patient satisfaction in a hospital environment is more difficult due

to the human behavioral interaction associated with the delivery of service" (Gijo, et al. 2013). An aspect of care where there is more "noise" is transitions of care.

Care Transitions and its Improvement Models

As mentioned, transitions of care refer to when the patient moves from hospital to home or any other facility. For example, consider a patient who leaves the hospital and goes to a skilled nursing facility. After a few weeks at the nursing facility, they go home. Once home, they have some follow-up appointments with their Primary Care Physician. These moments, when the patient is moving from one setting to another, are considered their transitions of care. These are also moments when the patient is vulnerable. The physical settings change, healthcare providers change, and their roles and responsibilities are transferred from one system to another. Sometimes, these transitions are not smooth and can lead to higher readmission rates and increased costs. Some of the reasons include (The Joint Commission 2012; Horwitz, et al. 2011):

- Communication breakdowns: Ineffective communication between healthcare professionals within a setting, across settings, or with the patient and/or family caregiver.

- Patient education breakdowns: Patients sometimes receive confusing information, or are excluded during the planning of their own care.

- Accountability breakdowns: Lack of responsibility by any system to ensure coordinated care for the patient, which may also lead to ignoring monitoring patient post-discharge.

Currently there are several evidence-based models to improve care transitions and reduce readmission rates. Some of them include the Care Transitions Intervention (CTI), Transitional Care Model (TCM), Better Outcomes for Older Adults through Safe Transitions (BOOST), Geriatric Resources for Assessment and Care of Elders (GRACE), and Project RED (Re-Engineered Discharge) (Nelson and Pulley 2015). Project BOOST, for example, developed by the Society of Hospital Medicine, focuses on enhancing the transition from hospital to home (Society of Hospital Medicine). It is a yearlong, mentored implementation program, wherein hospitals receive training to map the current processes and develop appropriate interventions to improve the transition and reduce readmissions rate. Some the interventions include a tool for identifying high-risk patients, a discharge checklist, Teach Back (nurse asking patients to relay the discharge instructions back to them), and follow-up telephone calls. While Project BOOST has been implemented in over 180 US hospitals, there are some barriers to its implementation. Lack of understanding of the current discharge process, and lack of buy-in from hospital administration and frontline staff are some of them (Williams, et al. 2014).

Apart from the BOOST model, there is evidence of other care transitions models reducing readmissions. Their value is measured through decreases in costs and increases in process efficiency. However, these models look at care transitions through the lens of healthcare providers. Referring back to BOOST's process mapping of the discharge process, it is the provider who maps the process. The study (Williams, et al. 2014) also revealed an inadequate and fragmented understanding of the current discharge process within the hospital staff, causing impediments to applying BOOST. This indicates that even though multiple healthcare expertise is involved in the process mapping, there is still a lack a coherent understanding of the discharge process. It also reveals the absence of an important perspective: that of the patient.

Patient Experience

Patient experience can be defined as “range of interactions that patients have with the health care system, including their care from health plans, and from doctors, nurses, and staff in hospitals, physician practices, and other health care facilities.” (AHRQ 2016). Doyle et.al. (2013) describe two components of patient experience: relational and functional. The relational component alludes to the interpersonal aspects of care. Empathy towards the patient, inclusion of the patient, and transparent, two-way communication between patient and care providers fall under this category. The functional component relates to the basic expectations of care being delivered; following protocols; meeting medical and physical support needs; and coordination between professionals. The meta-study (Doyle et. al. 2013) claims to have enough evidence to indicate patient experience as being important, and being one of the three “pillars of quality”, including patient safety (regulatory constraints) and clinical effectiveness (performance improvements). The report by Institute of Medicine (IOM 2001) also identifies “patient-centered” as being one of the six aims to improve the quality of care, in addition to the care being timely, effective, safe, efficient, and equitable. It defines patient-centered care as “care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions”.

Over the past few years, patient experience is getting more visibility and is being directly tied to payment models for hospitals. Understanding patient experience can help reveal how patients perceive the quality of care they have received, and whether the providers were respectful and responsive to their needs. How patients are treated and involved in their own care plan is now a criterion for assessment of health institutions and providers. In the UK, National Health System (NHS) implemented the Commissioning for Quality and Innovation (CQUIN) framework to incentivize care providers who

work towards improving patient experience and making them more active partners (NHS). In the US, Center for Medicare and Medicaid Services (CMS), administers patient surveys to collect data on patients' experience and to reimburse hospitals and physicians based on the scores. Known as Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), it is a standardized, 32-question survey (HCAHPS 2017) that is sent out to patients once they leave the hospital. It helps measure the quality of care a patient receives at a hospital, from patient's perspective. While it is voluntary for some hospitals (like critical access hospitals) to implement the survey, it is required by acute care hospitals under the inpatient prospective payment system (IPPS). The payment to these hospitals by the CMS depends on the survey scores. Furthermore, the Affordable Care Act of 2010 introduced the Hospital Value-Based Purchasing (VBP) program wherein CMS rewarded hospitals and physicians based on the quality of care provided, versus the quantity of services provided (CMS 2015). The HCAPHS survey was a key source to gather such information, in order to assess the incentives.

Addressing Patient Experience through Design Research

Savage (2006) discusses the application of ethnography in healthcare. Initially, ethnographic research was driven by a social science agenda to develop a social theory. An example in the paper (Savage 2006) was a study by Lawton (2000), to examine patients' experiences of palliative care in order to understand the change in perception of self and to gather insights on the experience of a terminal illness. However, in the current times, it has been recognized to be useful for the study of safety and quality in healthcare. For example, in identifying conditions of risk, particularly where these are rooted in organizational dynamics; human performance or interactions; and in complex areas where there are long chains of causation. While the paper (Savage

2006) discusses the value of ethnography, it also mentions the limitations and hesitation of its adoption in the healthcare context. However, it concludes by saying that "Ethnography is especially suited to advancing the cause of qualitative inquiry within healthcare research. Its particular strengths, such as its multi-method approach (including its capacity to incorporate a varying range of methods to address research aims) and its attention to context, while giving voice to individual experience, provide a counter for the totalizing tendencies of evidence-based practice."

Kaiser Permanente (KP) hospitals worked with IDEO (a design firm) to improve nurse handoffs during shift changes (McCreary 2010). Gaps became apparent through ethnographic research. The information exchange process took around 45 minutes and delayed the interaction between the patient and nurse. Furthermore, there was no standard way of giving/ receiving information which led to the loss of the same. To address this in an effective manner, information exchange was later done at patients' bedsides. This reduced the process time to 12 minutes and also involved the patient. A new software program was also created to gather information across shifts in a standardized way. This Nurse Knowledge Exchange program was later adopted by all KP hospitals.

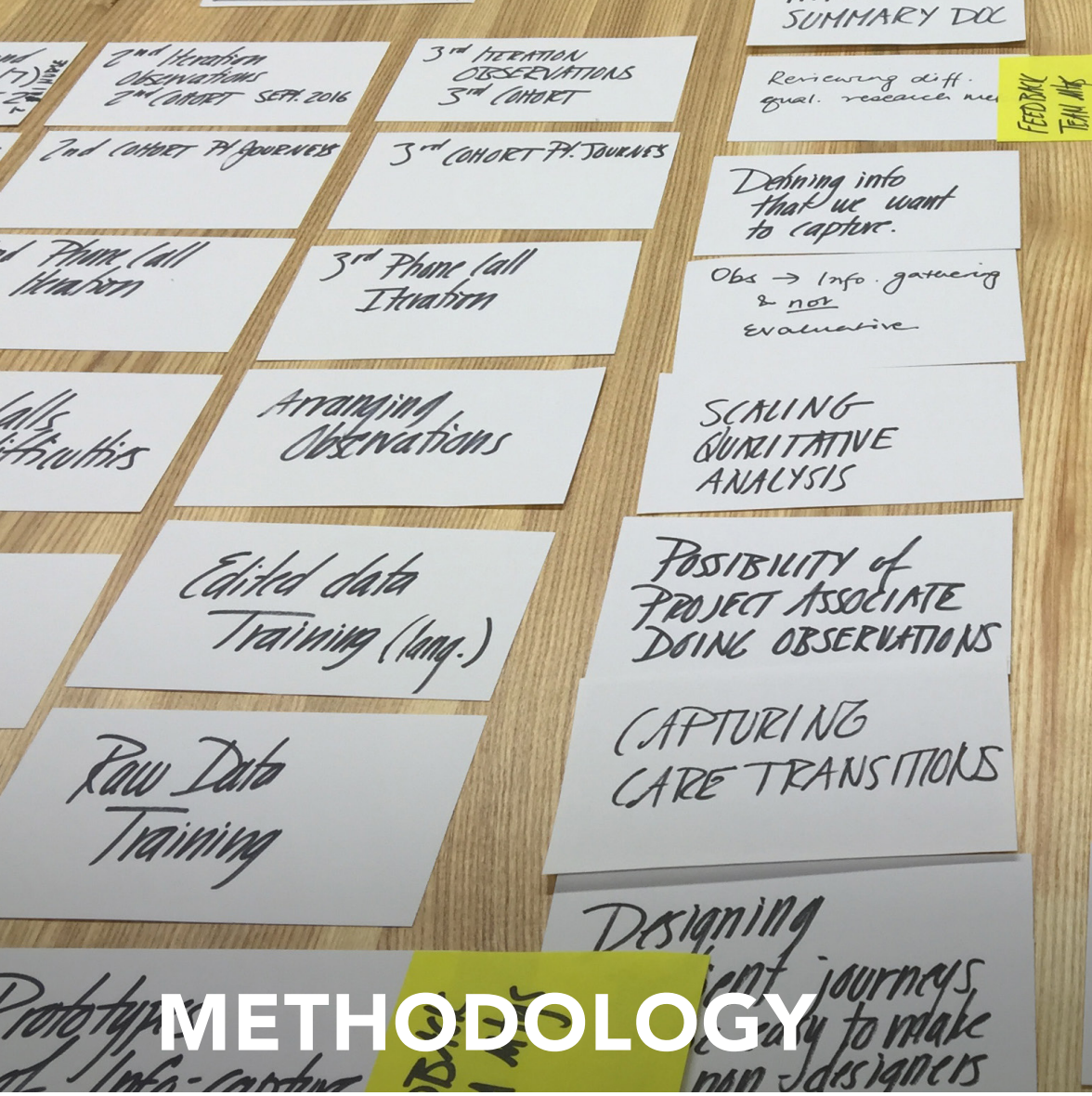
Nuewirth et.al. (2012) from Kaiser Permanente's Care Management Institute, demonstrate the implementation of a video ethnography program to identify gaps and unmet needs of patients during care transitions, in order to improve the quality of care. Making video recordings from patient interviews and observations across locations and over time, these are then shared during quality improvements (QI) initiative launches to share patient voices and experiences with the care providers.

In a project conducted by Stephen McCarthy et. al. (2016) from University College Cork, Ireland, the team including designer and researchers, developed a tool to allow multi-disciplinary teams to work

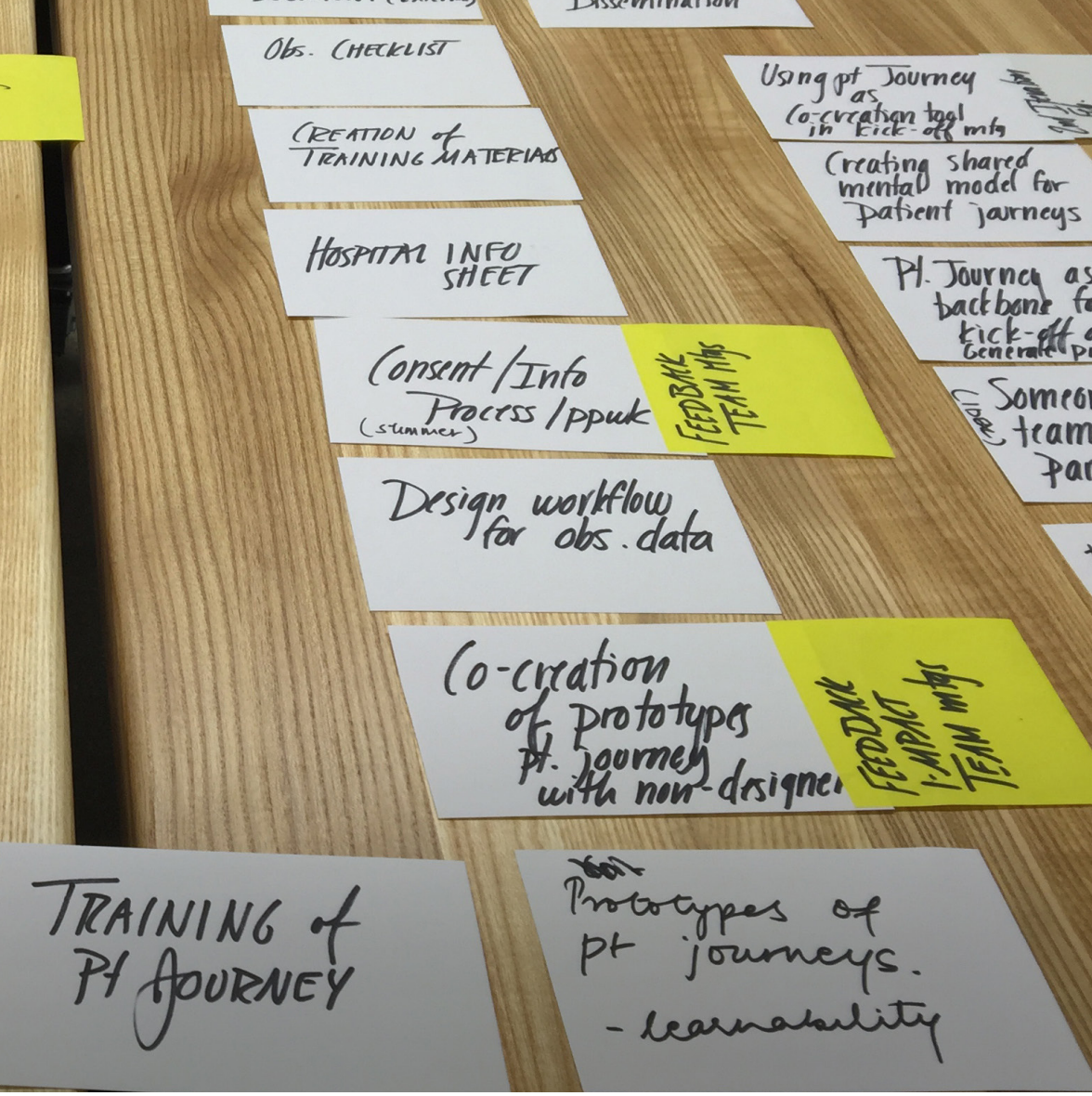
towards understanding the experiences of pregnant women prone to developing hypertension and pre-eclampsia (pregnancy complication characterized by high blood pressure and signs of damage to another organ system, often the kidneys). They created an integrated patient journey map template in order to combine patient experience, performance, and regulatory constraints in the healthcare context. Using design research methods to create the tool, they incorporated patient persona, and components of a service design blueprint, in order to map the journey. This template was then tested in multi-disciplinary workshops to develop a shared understanding in order to create a system to monitor the wellbeing of expecting mothers.

Furthermore, there are also some healthcare professionals who are beginning to see the value of design in healthcare. Recently, at one on the I-MPACT kick-offs in 2016, physician and professor of pulmonary care from University of Illinois, Dr. Jerry Krishnan, was invited to share his experience of applying design in healthcare. Having worked with designer and IIT Design professor Kim Erwin on several projects he now understands the value that a design approach can bring in healthcare by revealing underlying motivations, behaviors and needs of patients (Erwin and Krishnan 2016). Design research revealed to him that when care providers see the patient, they often only consider aspects like clinical status, and quality of care for a patient. However, there are certain aspects that they may overlook, which can negatively affect the care that a patient receives. Some of these include socio-economic factors, health behaviors, and the physical environment of the patient. If the care provider is more aware of these factors, they can ensure better care, by addressing them. In addition to the above examples, there are several medical innovation centers, like the Mayo Center Clinic for Innovation, and the Cleveland Clinic Innovation Center, which are adopting design research methods to understand and meet the unmet needs of patients.

The current literature contributes to the improvement of care transitions through several models which essentially adopt a Lean or Six Sigma oriented approach. These models are important measures to gauge the effectiveness of a certain standardized protocol/ procedure. However, these improvement methods are very provider-centric, in that they are implemented by and for the providers. This improvement is not always visible to the patient. Concurrently, there is also discussion and examples of ethnography, and design research being applied in healthcare to evoke empathy, understand patient behaviors, and identify unmet patient needs. Putting the patient at the center of care in order to improve the quality of care is starting to gain recognition for better healthcare delivery. This thesis continues to explore the application of design research in healthcare, specifically in care transitions, as a way for a diverse team of members including physicians, nurses, administrators, and patients to develop a shared understanding of the patient experience.



METHODOLOGY



As discussed previously, the improvement methodologies in healthcare are adopted from the manufacturing industry. These tend to be quantitative and are aimed towards improving medical outcomes; standardizing procedures to reduce variability and costs; and increasing efficiency. While these methodologies are effective in improving these aspects, they are very provider centric. Recently, the value of design is increasingly being recognized in healthcare to understand and approach healthcare from the patient perspective.

In the context of this project, a design approach was introduced to have a patient-centered perspective to care transitions. Care transitions being an expansive topic, spans across several locations and includes multiple stakeholders. As a design researcher, trying to discover a way for a multi-disciplinary team to build a shared mental model of care transitions and orient them towards the patient, I approached the project using an action research framework.

Action research, originally introduced by MIT professor Kurt Lewin (in the mid-1940s) is a practical research methodology wherein the researcher places themselves in the actual environment. It is participatory in that it requires the collaboration of all participants involved in the process with the aim to improve or change something. Also, it is a cyclical process of action and research consisting of four components: plan, act, observe, and reflect (Hopkins and Ahtaridou 2009). Swann (2002) describes action research as "an appropriate methodology for any design project where the final outcome is undefined". As a designer, this iterative, cyclical methodology is very similar to the design processes which also demand several iterations to explore, develop, and refine the final outcome.

In this project, development of appropriate design methods and tools to visualize the patient perspective, namely observations and patient journey maps, were co-created with the project partners at the I-MPACT CC. One of the core reasons for such a strong collaboration was the lifespan of the I-MPACT CQI. When we started working with I-MPACT, it had just been initiated. While we were involved with them for 2 years, the CQI would continue to run beyond that. This also meant that kick-offs would continue to run, as long as they were recruiting new hospitals. This made it imperative that any tools or methods we developed for the kick-off were sustainable and could be taken forward without design involvement. Therefore, collaborating and co-creating with our project partners became key in the development of this project.

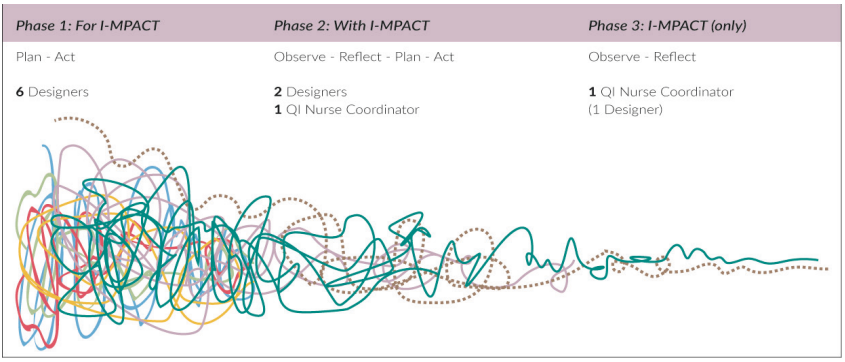


Figure 1. The three phases of the design process for the project. Highlights the four components of Action Research during each phase. (Modified from the "Design Squiggle" by Damien Newman)

The development of the tools for the kick-off events themselves was an iterative process. Initially, the research was exploratory as the goal was undefined. The lack of clarity and focus encouraged an openness and allowed the deployment different kinds of research methods to understand care transitions. Over the course of the project, as the goal for research was defined, a few research methods were selected. Those methods were then adapted and designed as per the requirements and resources of the project. With several iterations, the methods were finalized, the process of which is discussed next, over the three research phases, as shown in Figure 1.

Phase 1: For I-MPACT

Pilot Observations

In order to better understand the context of care transitions, the entire MDes cohort (6 designers) conducted pilot observations at four Michigan hospitals that were the first set of hospitals to be recruited for the I-MPACT CQI:

- Michigan Medicine (formerly known as UMHS or University of Michigan Health System), Ann Arbor
- St Joseph Mercy (St. Joe's), Ann Arbor
- Beaumont Health System, Troy

- Beaumont Health System, Royal Oak

The day the patient gets discharged is an important point of care transition. As the patient is moving to a different setting, the responsibility of care is being transferred from the hospital care team to another facility's care team or to the patient themselves.

In order to be able to observe and interact with patients, we had to go through Health Insurance Portability and Accountability Act (HIPAA) training to ensure patient privacy and fulfill medical requirements to be in a healthcare space. In addition, depending on different hospitals, we had to go through training to be aware of the hospital protocols. The paperwork for these procedures across the 4 healthcare facilities took 4-5 weeks.

Once the paperwork was completed for each location, the cohort conducted fly-on-the-wall or non-participant observations (Williams 2008) to understand the interactions and procedures that take place to discharge a patient. We also mapped the physical environment, the room, floor layout, and positioning of people in the patient room. Prior to observing, we prepared consent forms for patients, allowing us to observe them. Initially, we did not have a very specific objective or context, so we shadowed different people in the system for 2 full days, specifically the Short Stay Unit (SSU) at Michigan Medicine, to understand discharge from their perspective. The SSU was the observation unit, where patients would not stay for more than 24 hours. Therefore there were higher chances of observing more numbers of patients being discharged.

Shadowing physicians, we observed how they spent a considerable amount of time planning and discussing each patient during hand-off meetings. After the meeting, they would start their rounds, visit each patient for 5-10 minutes and assess them. Typically, patients who were to be discharged would be told about it when the physician would make their rounds. Furthermore, on the day of discharge at the SSU,



A physician checking a patient's EMR before visiting the patient. (during observations at Michigan Medicine)

the doctors would only see the patient once during the rounds. They are also responsible for putting in the discharge order for the patient in the electronic medical record (EMR).

Shadowing nurses, we observed how they had maximum face-to-face interaction with the patient. Patients also felt more comfortable talking to nurses about things they did not mention in front of the physician. When not interacting with the patient, they were observed to be constantly on the move, addressing patient needs, updating EMR, and checking EMR for any updates from the physician. Their hand-off varied from the physicians', in that it was more informal and each nurse shared information in a different way.

We tried another format of observation, where we observed staying



Observing interactions between the patient and the care team members from the patient room (at St. Joe's Ann Arbor)

inside or outside a patient room. This allowed us to observe every interaction that a patient has with care team members on the day of discharge. It also gave insight to the emotional and experiential aspects of the patient through witnessing their interactions with their family members or talking directly to us as researchers. If patients agreed, we also conducted short phone call interviews within 7-10 days of their discharge, complying with the HCAHPS survey. Ensuring that we did not ask questions similar to the survey questions, we formulated 5 interview questions to understand the patients' experiences when leaving the hospital and once they were home (See Appendix A).

We observed 40 patients across 4 healthcare facilities and conducted 18 (out of 40 attempted) post-discharge phone interviews. In addition to the observed patients, we also interviewed 7 patients/caregivers from an e-advisory group associated with I-MPACT. The in-depth, 45-minute, semi-structured interviews with patients and caregivers



MDes designers conducting post-discharge phone interviews to follow-up on the observed patients, and ask about their experiences once they left the hospital



In-depth interview with one of the caregivers (Joan Martin)to get inisght into patient's and caregiver's personal experiences regarding their transition of care

gave us the opportunity to get insights along with a longer continuum of care transitions from hospital to other facilities to home to possible readmission back to the hospital.

The purpose of the pilot observations and interviews was two-fold. First, they helped the MDes cohort to understand the context. Not completely understanding care transitions, the observations were vital in informing us about what transition of care means, what typically occurs, and what the breakdowns and gaps are. Second, once having a general idea of what care transitions meant, it was very valuable in designing the activities of the kick-off. This understanding helped us to facilitate the kick-off, guide conversations, and share insights.

The Kick-off

The main aim of the kick-off was to create a collaborative, non-hierarchical environment to engage the multiple stakeholders and encourage them to work together in understanding the gaps in care transitions. It was a day-long event that comprised of the following activities:

Patient Panel:

Up to three patients from the e-advisory group were invited to talk about their previous experiences in care transitions across different healthcare institutions. The panel later opened up to questions from the audience. This interaction allowed the participants, which mainly comprised of healthcare professionals, to view the issues from the patients' point of view.

Patient Journey Mapping:

Breaking off into the hospital-PO clusters, each group was then facilitated by an MDes student. To start off the activities, each team was probed to build a patient's journey (from a chosen target population), in moving within their hospital system, another institution, or going home. The MDes designer at the table helped visualize this as



Patient Panel: Members of the UM patient e-advisory group (R to L): Tom Hoatlin, Joan Martin, and Molly Brennan



Patient Journey Mapping: The Michigan Medicine (UMHS) cluster mapping a patient's journey from their hospital to a Skilled Nursing facility (SNF) to home



Game: Collaborative role-based game wherein a particular member of the care team can only play cards based on their role, in order to discharge the patients



Problem Definition and Intervention Development: Problems identified by the Michigan Medicine cluster, based on the prior activities and personal experiences

a map, by charting the different locations and activities that take place in each setting.

Game:

Based on the insights we gained from our research, we developed a role-based, collaborative card game that simulated the experience of discharging a patient. Apart from using it as a platform for sharing our insights, it made the bottlenecks and frustrations in the discharge process apparent, and it initiated conversations around care transitions based on the participants' experiences.

Problem Definition and Intervention Development:

Using the patient journey map as a reference point, each group collaboratively identified problems within care transitions. Designers facilitated this discussion and clustered problems into themes. The group then went on to choose one theme, developed a problem statement, and continued to identify possible interventions to it.

Through the patient panel, the game, and the patient journey mapping, each group was able to able to view care transitions from multiple perspectives. Based on those activities, the groups were able to identify gaps in at their institution. The day ended with each group presenting their problem statement and interventions to everyone in the room, in order to share and discuss the possible directions that each group might pursue, to address care transitions.



Participants from the four hospitals at the first I-MPACT kick-off in April 2016, hosted at the MDes Integrative Design studio



A designer facilitating each table through the day's activities



Participants playing the collaborative card game



Teams collaboratively identifying problem statements and potential interventions





Each hospital presenting their problem statement and potential intervention. St. Joe's, Ann Arbor (above); Michigan Medicine (below)

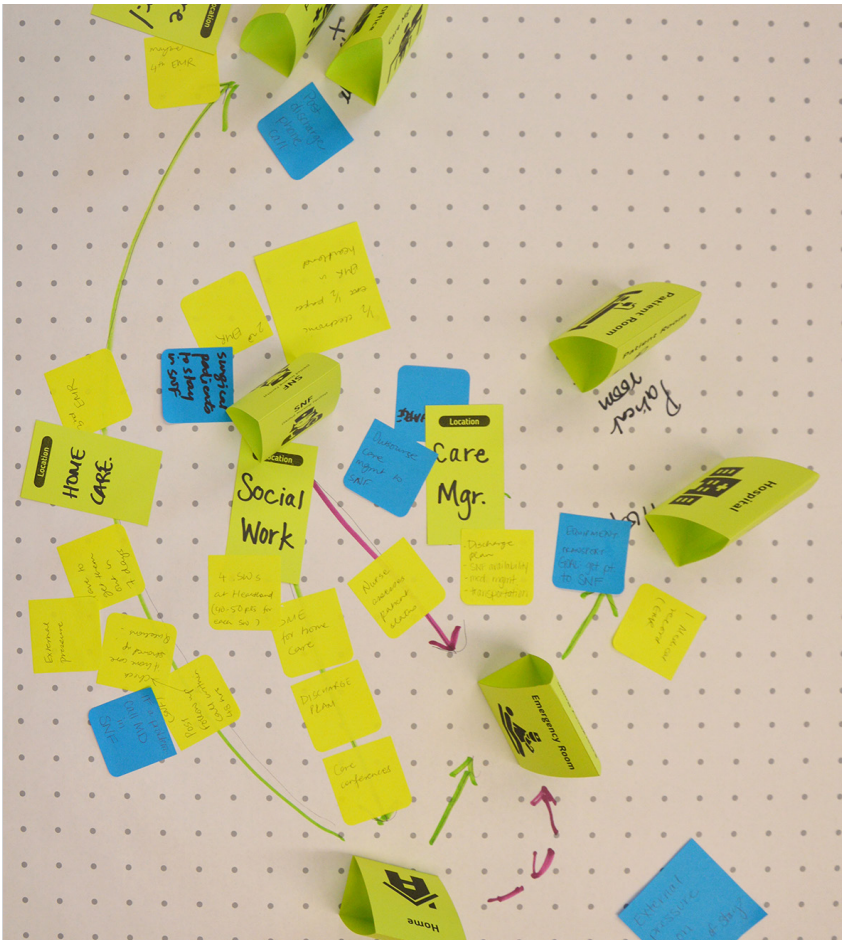
Takeaways from the Kick-off

The first kick-off in April 2016 was successful in engaging the participants and keeping it interactive and collaborative. The participants were positively surprised by the involvement of designers and its result in creating an interactive environment. Some of them also appreciated the insights and perspective that we brought to each of our tables, based on our pilot observations and interviews.

The patient panel was very valuable for the participants, as it provided a platform for patients and caregivers to come to the forefront and talk about their experiences. The game served its purpose by starting conversations around personal experiences of the discharge process. The patient journey mapping, problem identification and intervention mapping were successful as well. However, there were some aspects that could be further improved.

The patient journey mapping, while an important step to visualize a patient's movement across settings, was leaning more towards an idealized version as opposed to the current state. The other aspect was that each member only knew the part that they play in the care transitions. For this activity, our role as a facilitator was very important in recalibrating the expectations for the exercise. We did this through sharing our own insights from research and ensuring the discussions were around patients and exemplify what currently happens.

The problem definition and intervention development were successful activities, except that they were each done on different surfaces. Some information was documented on tables, and some on the walls. This led to the inadvertent loss of information, as the information on a certain surface was not being referred to, even though it was all interconnected.



A patient's journey mapped out by a team, which documented the ideal state (based on team members' fragmented mental models) instead of current state

Need for a Boundary Object

During the first kick-off, the activity of each group mapping out a patient's journey of care transitions revealed two things:

First, when mapping the journey, members of the clusters defaulted to documenting an ideal state as opposed to the current state. They listed out the steps/ activities that were supposed to occur as per protocol. In this case, having a facilitator to encourage the team members to discuss what actually happens, became critical.

Second, each participant's perception of care transitions was different and fragmented. The clusters included members from several communities of practice (Arias and Fischer 2000). Communities of practice are comprised of practitioners with expertise in a certain domain. In this context, the different communities included that of the physicians, nurses, care managers, and administrators. Each healthcare professional knew the components of care transitions that they were involved in, based on their roles and tasks. This can also be characterized as Rittel's "symmetry of ignorance" (1972) which implies that the expertise and knowledge are distributed across several people working towards a problem, and no one's knowledge is superior to another's. The knowledge and understanding that each team member had, while equally important and relevant, was different and resulted in distinct mental models. There was no shared experience or understanding of care transitions.

For the future kick-offs, we had to think of how we could better orient the clusters toward the patient experience and provide a shared experience of care transitions. In order for the clusters to have effective collaboration, it was important that the participants moved from their communities of practice towards communities of interest (Arias and Fisher 2000). Communities of interest include practitioners from different backgrounds coming together to address a shared concern. The interest in this case is being patient-centered to improve the quality of care transitions. Boundary objects are effective in creating a shared understanding. They perform a "brokering role" through the "translation, coordination, and alignment" (Fischer and Reeves 1995) between the different perspectives of several communities of practice. Boundary objects are especially helpful in situations where a team including different communities of practice have partial knowledge.

Boundary objects was a concept originally introduced by Star and Griesemer (1989). Through researching the development of the Museum of Vertebrate Zoology at the University of California, Berkeley,

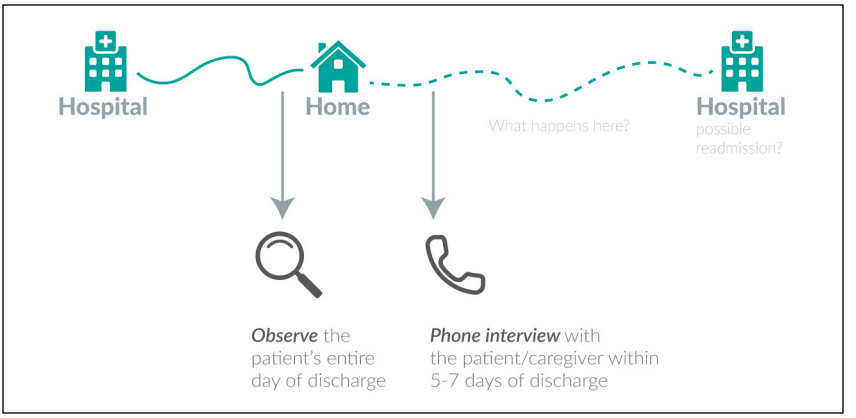
Star and Griesemer's case study led to the concept of boundary objects. They defined its purpose as encouraging communication and cooperation across different social worlds/ communities of practice. They defined boundary objects as:

> "Objects which are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. They may be abstract or concrete. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds" (Star and Griesemer 1989).

The need for effective boundary objects in future kick-offs became even more critical as the kick-offs would not be run by the designers. In addition to that, there would not be a facilitator for each team. This implied that the teams, including several communities of practice with different viewpoints, would have to facilitate their own collaboration. They would need to self-direct the activities and conversations to identify problem statements and interventions. We needed to provide adequate direction and structure to ensure that each team had a shared mental model of care transitions at their institution from the patient perspective. Having a shared experience would also level the playing field and encourage team members to talk to each other as opposed to talking past each other.

Phase 2: With I-MPACT

After the first kick-off, two of the six MDes designers, Elizabeth Vander Veen and myself, continued working with the I-MPACT CC towards refining the kick-off for future implementation. Through becoming a part of the I-MPACT CC over a 10-week internship, we worked collaboratively with them to define processes and procedures for this



Points along the continuum of transitions of care where patient-centered information could be captured through feasible research methods

design-led kick-off format, so that it can be conducted in the future without designers.

A) Gathering patient-centered information over the entire continuum of transitions of care

While we had done several observations and interviews earlier to understand the patient perspective on the discharge process, we discussed other design methods that could be applicable for gathering information once the patient leaves a healthcare facility. We explored the possibility of patient diaries as cultural probes (Gaver et al. 1995) to get information from patients once they are at home. However, that brought up concerns regarding the patient's protected health information (PHI), and the time and skills required to analyze the collected data (since in the future, the information would be collected by someone who may not have design research skills).

Having witnessed the power of observations to help understand patient-provider interactions, the difference between what they say and what they do, we decided with the I-MPACT CC members to continue with that method. We then revisited other points during the care transition continuum where observations could help gain insights. We considered not just observing the day of discharge, but also

observing a patient once they are home as that is where issues may arise. That too brought up privacy and logistical concerns. However, we did ensure a way of getting information once the patient leaves a facility. We did this through continuing with the post-discharge phone interviews that were done prior to the kick-off (See Appendix B).

B) Redefining the Purpose of Observations

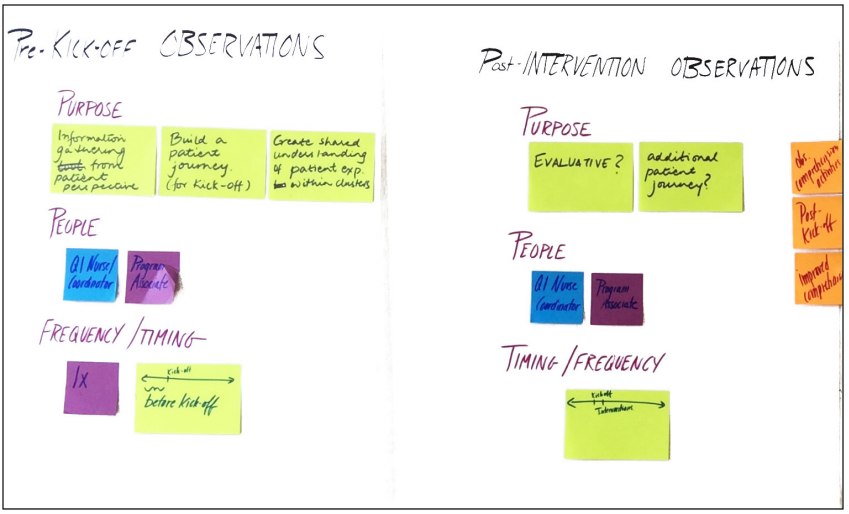
The observations that we conducted prior to the first kick-off, brought to light a different perspective and revealed things that the healthcare team members did not necessarily see. The design facilitators sharing their insights on the patient's emotions and experiences on the day of discharge, was very valuable for the cluster to know. It enabled them to see things from another perspective.

We sat down as a team and discussed possible points in time of the CQI where observations could be useful. Initially, we discussed the purpose of having observations at two points: before the kick-off and after an intervention has been implemented. A critical consideration for observations was that they would be done by one, or at most two, people in the future. Therefore, looking at the time and resource constraints, only one observation pre kick-off and one post intervention (per site) were feasible.

While an observation pre kick-off would be valuable in understanding the current state of discharge, an observation of the discharge process post intervention would not be as valuable. Core reasons were:

- If the purpose of the observation was to evaluate the implementation of an intervention, only one observation would not be sufficient.
- Given that the day of the discharge is being observed, the intervention would have to directly impact the discharge process in order for the observer to record the change. However, the interventions are different for each site and may not always be available on the day of discharge.

After several meetings, we came to a consensus that the observations



Identifying the purpose and frequency of two types of observations: one prior to the kick-off, and the other post the kick-off, once an intervention is implemented at a site

can be most valuable in understanding the current state of care transitions. For that purpose, conducting observations along with post-discharge phone interviews, prior to kick-off was decided. For the observations to be of value in the kick-off, we discussed

- What kind of information should be captured?
- How can it be shared with the team?

What kind of information would be valuable to capture?

Moving between different healthcare settings adds to the already complex healthcare system. Given the finite resources and time, care teams default to focusing on their individual roles to provide the best care to their patient. From our observations prior to the kick-off, we realized that observing the discharge process from the patient room not only provided a patient perspective and experience, but also provided a complete picture of discharge. It helped us witness all interactions between patient and caregiver and care team members. Therefore, we decided that in the future, observations would be done sitting inside a patient's room. If the patient wasn't comfortable with

an observer being in the room, then the observer would sit outside the room and enter with every care team member going in to see the patient.

To identify the pieces of information to record, we considered several frameworks for observational research. AEIOU (Activities, Environments, Interactions, Objects, Users), POEMS (People, Objects, Environment, Message, Service), and Ax4 (Actors, Activities, Atmosphere, Artifacts), were some of them (Kumar 2013; Robinson 1991). These frameworks gave us a broad sense of categories that are currently observed, and helped us to identify the ones relevant to the project context.

In addition to the secondary research, we discussed with I-MPACT CC, the kind of information we captured in prior observations. For those observations, we all had recorded different kinds of information. Some of the aspects were:

- Time–stamps of every patient-provider interaction, and provider-provider interaction
- Conversations between researcher and patient (if possible), or patient and family caregivers that revealed the emotional and behavioral state of patient
- Schematics of patient rooms

Seeing as the observations were not evaluative but rather descriptive, it was collectively decided that capturing every patient interaction at the time would provide the most valuable information to get a sense of the discharge process from the patient perspective. We also emphasized capturing some of the emotional responses of the patient when possible. Apart from observing, another way to do this was for the researcher to have informal conversations with the patient about their experience and concerns.

After a few iterations, we created a template to take notes during observation (See Appendix C). In addition to the time, people, and

interactions, we incorporated the "observer's notes" section as a "memo section". These were intended for the observer to record his/her interpretations of the situation, any surprises or highlights, and if there were any questions that he/she may have for any person involved. Using the above artifact to collect information, the next step was to decide the format in which it could be shared with the clusters.

How can the information be shared with the clusters?

Although the first kick-off was successful, there was still room for improvement. As it has been established earlier, there was a need for a boundary object. For that kick-off, the way we shared insights from observations was through a game and a short 1-page summary of what we saw over the 4 facilities. Also, since we facilitated at each table, we could bring up insights from observations and interviews and act as a patient advocate. This, to an extent, helped keep the discussion centered around the patient and the current state of care transitions. However, in the future kick-offs, there would be only 1-2 facilitators for the entire room. Each cluster would have to self-direct their conversations. In addition to that, we also wanted to develop a format that would facilitate a smoother transition into problem identification and intervention development.

There were several discussions with the I-MPACT team to determine the best way to share the information. We looked into several service design tools, specifically customer journey mapping and a day-in-the-life method. Customer journey mapping (Stickdorn and Schneider 2011) helps visualize customers experiences interacting with a service. Typically, it is created by designers by gathering information through interviews, observations, cultural probes and defining personas. It is helpful in achieving an overview of the user's experience and motivations from their perspective over a period of time. A-day-in-the-life method (Stickdorn and Schneider 2011), as the name suggests, is a more specific tool in that it describes the activities, thoughts, and feelings of a user over a day. Its purpose is to provide an overview of a



A visualized day-in-a-life of a patient used by the MDes cohort in a completely different context. Apart from the activities, the timeline made it easier to map the gaps(red/pink post-its) and opportunity areas (green/blue post-its)

user's typical day.

Working from the intent of the above tools, i.e. gaining an overview of the activities and experiences from the patient perspective, we discussed with I-MPACT CC the possibility of translating observations on the day of discharge into a visual timeline of the day. However, it would be different from the tools as each map would be created from one patient's journey, as opposed to being a generalized interpretation from several patients.

We went through several iterations for the patient journey map. There were discussions on whether the map should also include a summary of insights to highlight the breakdowns or gaps. However, we decided that keeping it descriptive would encourage the clusters to read the patient journey map and identify gaps together as a team. It would also avoid the observer's bias.

C) Co-Creating with the QI Nurse Coordinator

While in discussion with the I-MPACT team about what kind of observations need to be conducted, colleague Elizabeth Vander Veen and I had several meetings with Nkiru Okammor, the QI Nurse Coordinator, about the specifics of the observations. As Ms. Okammor

would be conducting observations and creating patient journey maps in the future, we spent 10 weeks working with her to:

- Develop protocols and processes for observations
- Provide her training and practice on conducting observations
- Create patient journey maps from the observations, and train her to create the same

Developing protocols for conducting observations

During our pilot observations, we faced a few logistical challenges that impeded the research. Some included:

- Losing time by waiting for an I-MPACT team member to identify the patients being discharged and get their consent
- Not being able to observe if no patient gave their consent, or if a patient was no longer being discharged
- Introducing ourselves to the care teams (of the patient, who may not be an I-MPACT member), and explaining to them the purpose of the observations

In order to resolve some of these issues and save time in the future, Ms. Okammor suggested that we develop a checklist for the hospital site, to use the time more effectively. We sent out a summarized document prior to the observation which included:

- the checklist for observations (See Appendix D (i)),
- an information sheet for the hospital (See Appendix D (ii)),
- and an information sheet for the patient (See Appendix D (iii)).

This helped in communicating expectations for and from the I-MPACT CC more clearly.

Sharing skills and practices to conduct observations

After setting up protocols to ensure a smoother process of observations at sites, we spent time and took Ms. Okammor through the specifics of data gathering from observations. Prior to joining the I-MPACT CC, she was a Registered Nurse (RN) at Michigan

Initial sentences	*Reframed sentences*
RN reviewed the discharge summary and handed it to patient (pt). When pt asked about the med dose changes and why he needed to stop taking a med, *RN mentioned that pt should follow instructions* 1 written for his meds and *ask the questions to his PCP appointment* 2.	RN resumed education, handed discharge paperwork to pt. When pt asked about the med dose changes and why he needed to stop taking a med, *RN redirected pt to PCP* 1 for med adjustment questions. *Mentioned to pt that he should follow instructions written for his meds* 2.
Nurse discussed discharge instruction that included no changes in his medications *but did not go with them one by one*	Nurse reviewed discharge paperwork: in the med section, *briefly said "no changes in your medications".*
Pt asked Tech if his discharge paper was ready and *threatened* to leave once it was 4pm.	Tech enters, pt *strongly cautioned* that he was going to leave at 4pm regardless.

Restructuring of sentences to avoid bias and judgement and communicate information in a descriptive manner

Medicine. Being trained as a nurse, she was used to looking at things in a certain way. She was very proficient in evaluating processes and identifying if protocols were being followed. However, these observations were not evaluative and had to be as free from judgment or personal interpretation as possible. Through sharing some of our own observations and experiences, we encouraged her to record things from the patients' perspectives and focus on the interactions.

Ms. Okammor and I went to Michigan Medicine, St. Joes and Heartland Heath Care Center (skilled nursing facility) to conduct observations as discussed. We each observed a patient at every facility and took notes on the notetaking sheet. One of the advantages of sitting in the patient room was that the observer was able to build a rapport with the patient, if the patient was open to conversations. That way, the observer could have conversations about patient's experience in the hospital, and ask questions related to their discharge. In this regard, Ms Okammor's prior role as a nurse worked to her advantage as she was very comfortable talking to patients. The combination of observations

and informal interviews helped create a stronger patient context by providing insights on patient's social and medical status. It also helped in getting patient's opinion on the care they received, their experience on being admitted, and readiness to leave.

One of the challenges in doing such observations, as mentioned by Ms. Okammor, was the shift she had to make in the way she saw things. She was not used to "being on the other side". As a healthcare provider, whose main aim was to ensure patient safety and wellbeing, it was hard for her to "pull back" and not respond directly to patient needs. An instance she recalled from one of her observations was when she was observing a patient who was on fluid restriction (as specified on the whiteboard). Despite the restriction, she noticed the patient drinking more water that he should. At that moment, instead of directly pointing it out, she asked the patient questions about how much water he was allowed to have. Another instance was when she noticed a nurse entering the patient's room without sanitizing her hands. Although she did not confront the nurse, she did bring it up later in our discussion. She had to constantly remind herself that she could not interfere in the process. However, through the learning-by-doing approach, and conducting several observations, she trained herself to avoid intervening in the process.

Another challenge that occurred was after the observations, when we transcribed the notes. Again, owing to Ms. Okammor's prior training, she was used to writing a certain way. We spent time with her to review the language and tone of voice to convey the information in a neutral, non-evaluative manner. On the left, in the table, are some of the examples from the data entries of the observations which illustrate how we reframed some of the sentences to communicate the observed concerns and behaviors without being too harsh or judgmental.

Creating Patient Journey Maps

One of the most important considerations for building the patient

journey map was the level of skills and resources (access to the appropriate software) available. The patient journey maps would be created by non-designers who may not necessarily have the skills or the access to graphic design software. It was imperative that for patient journey maps to be sustainable, they needed to be easy to create with accessible software. We first tried PowerPoint, but that did not ensure any consistency in format. Every map looked different. It also was a very time-consuming process. It took the time to edit the transcribed data, copy it to PowerPoint and then fit it all on one page.

Eventually, we decided to use Microsoft Visio as it had some advantages:

- Although it was a software to be purchased, it was more accessible and did not require the level of skills that other graphic design software do.
- While it had some timeline templates, it provided the option for creating one's own timeline template.
- One could directly import data from an Excel spreadsheet. This is a time-saving feature as it omits the step of having to import it manually.

In order to ensure consistency and ease in the translation of information from observations to patient journey maps we co-designed a 4-step process:

1. Handwritten notes

2. Raw Data

3. Edited Data

4. Patient Journey Map

1.Handwritten notes:

These were the original handwritten notes from the observations. Designed as a note-taking template, it helped capture more consistent information. The prompts at the bottom served as a reminder for the observer regarding what kind of information to capture.



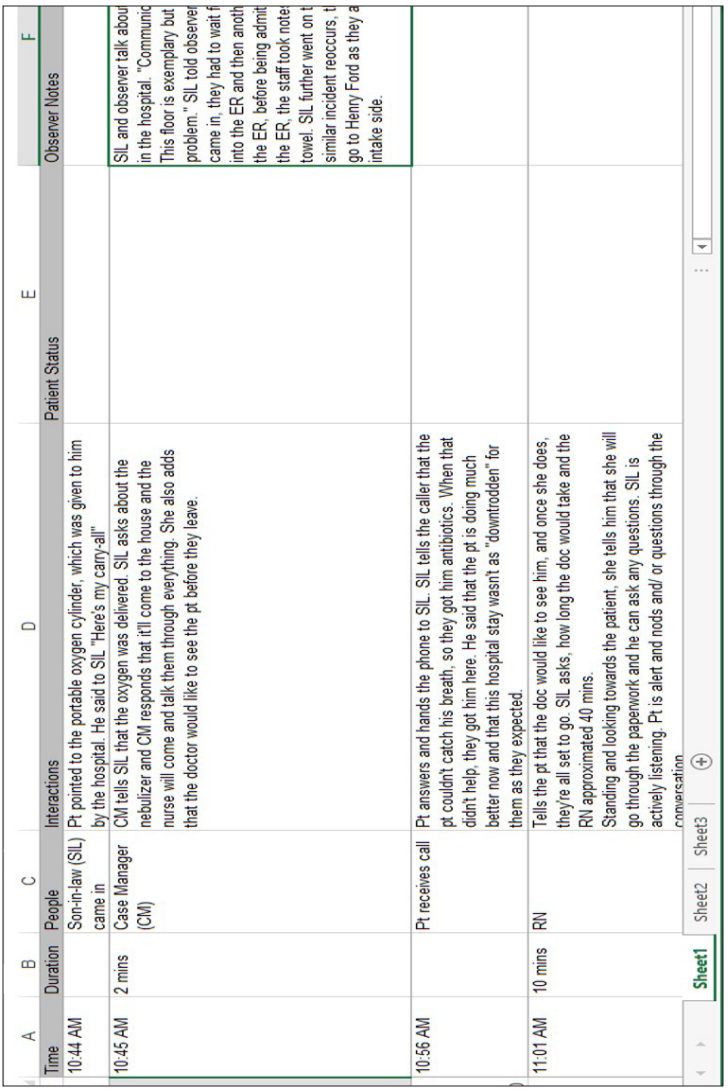
Hospital:
Target population:

Observer:
Date:

Time	People	Interactions	Patient status	Observer's Notes
		Write down the interactions of different care team members with pt *Quotes that highlight anything surprising/ key incidents for ex. conversations pertaining to discharge, pt education, follow up appointments*	*Write down pt opinions, behaviors, possible conversations with the caregiver* *Quotes that highlight anything surprising* *Your interactions with the pt*	*Note down your thoughts* *Note down your interactions with the medical team*

2. Raw Data:

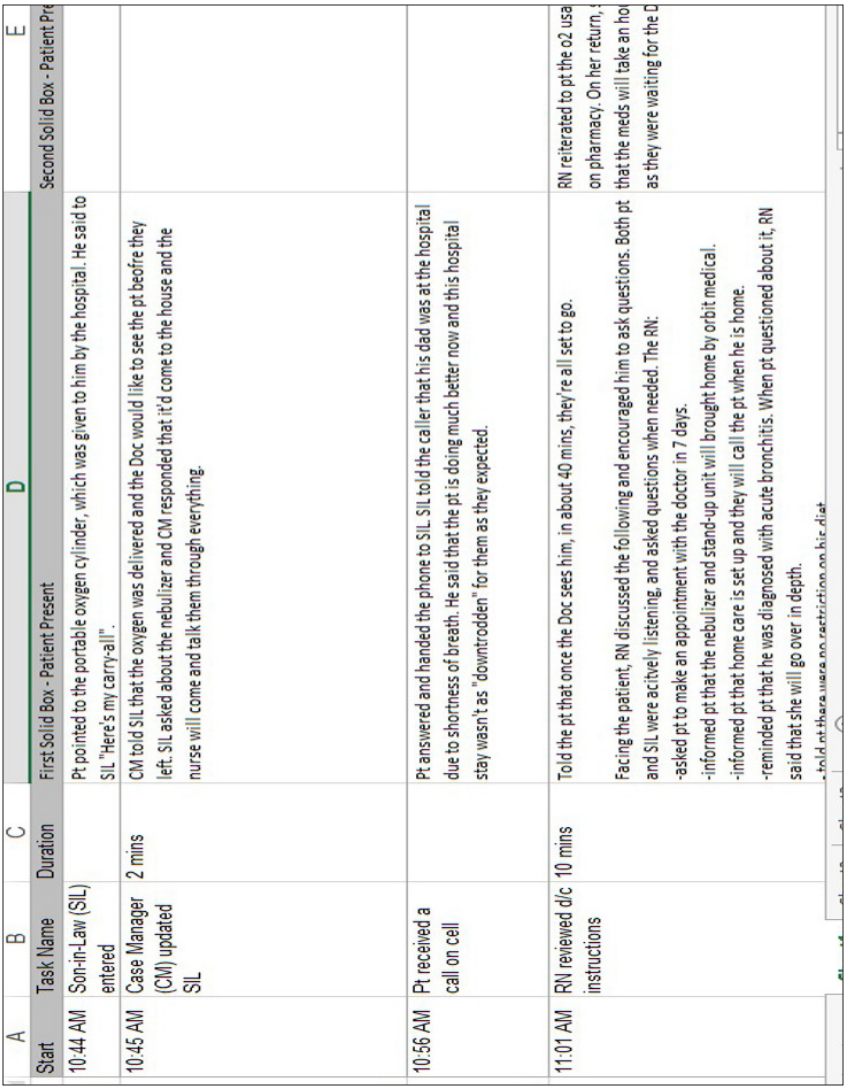
An Excel spreadsheet, this document had the same columns as the note-taking sheet. It was a more detailed, digital version of the notes. It listed out all the interactions with in-depth information. Screenshot of an example below:



Time	Duration	People	Interactions	Patient Status	Observer Notes
10:44 AM		Son-in-law (SIL)	Pt pointed to the portable oxygen cylinder, which was given to him by the hospital. He said to SIL "Here's my carry-all"		
10:45 AM	2 mins	Case Manager (CM)	CM tells SIL that the oxygen was delivered. SIL asks about the nebulizer and CM responds that it'll come to the house and the nurse will come and talk them through everything. She also adds that the doctor would like to see the pt before they leave.		SIL and observer talk abou in the hospital. "Communic This floor is exemplary but problem." SIL told observer came in, they had to wait f into the ER and then anoth the ER, before being admit the ER, the staff took note towel. SIL further went on t similar incident reoccurs, t go to Henry Ford as they a intake side.
10:56 AM		Pt receives call	Pt answers and hands the phone to SIL. SIL tells the caller that the pt couldn't catch his breath, so they got him antibiotics. When that didn't help, they got him here. He said that the pt is doing much better now and that this hospital stay wasn't as "downtrodden" for them as they expected.		
11:01 AM	10 mins	RN	Tells the pt that the doc would like to see him, and once she does, they're all set to go. SIL asks, how long the doc would take and the RN approximated 40 mins. Standing and looking towards the patient, she tells him that she will go through the paperwork and he can ask any questions. SIL is actively listening. Pt is alert and nods and/ or questions through the conversation.		

3. Edited Data

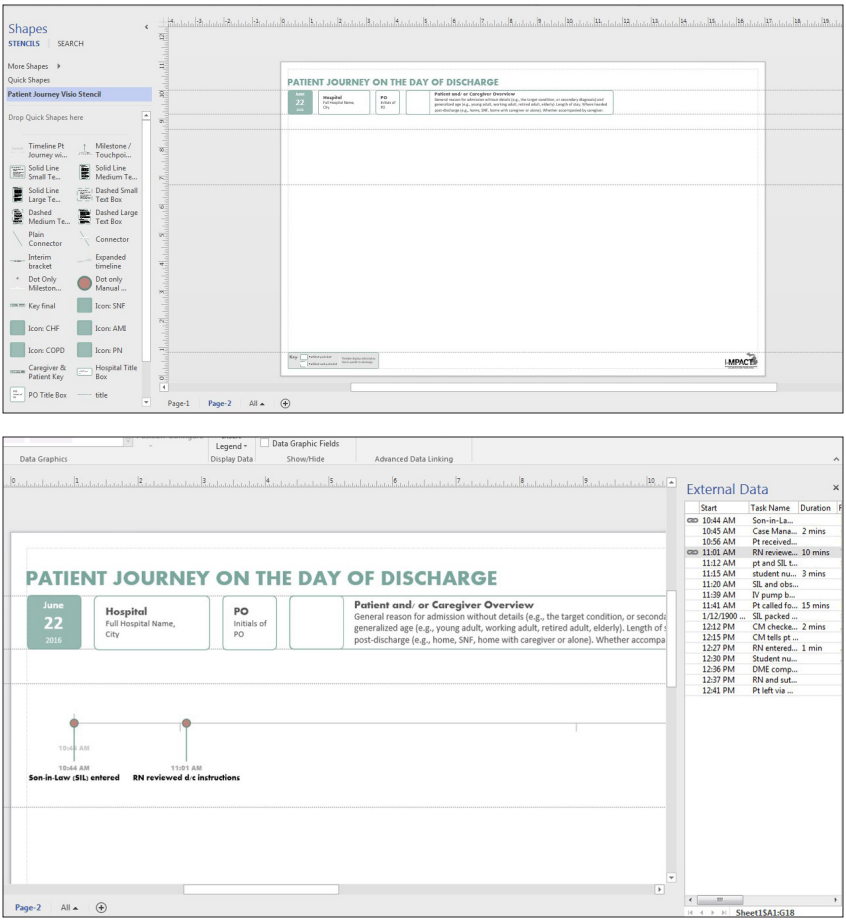
An Excel spreadsheet, this document had the slightly different columns than the raw data document. As this spreadsheet would be directly imported into Visio, the column names reflected the arrangement of text on the timeline. This was an abridged version of the raw data, only including discharge related interactions and summarized text and quotes. Screenshot of an example below:



	A	B	C	D	E
	Start	Task Name	Duration	First Solid Box - Patient Present	Second Solid Box - Patient Pre
	10:44 AM	Son-in-Law (SIL) entered		Pt pointed to the portable oxygen cylinder, which was given to him by the hospital. He said to SIL "Here's my carry-all".	
	10:45 AM	Case Manager (CM) updated SIL	2 mins	CM told SIL that the oxygen was delivered and the Doc would like to see the pt beofre they left. SIL asked about the nebulizer and CM responded that it'd come to the house and the nurse will come and talk them through everything.	
	10:56 AM	Pt received a call on cell		Pt answered and handed the phone to SIL. SIL told the caller that his dad was at the hospital due to shortness of breath. He said that the pt is doing much better now and this hospital stay wasn't as "downtrodden" for them as they expected.	
	11:01 AM	RN reviewed d/c instructions	10 mins	Told the pt that once the Doc sees him, in about 40 mins, they're all set to go. Facing the patient, RN discussed the following and encouraged him to ask questions. Both pt and SIL were actively listening, and asked questions when needed. The RN: -asked pt to make an appointment with the doctor in 7 days. -informed pt that the nebulizer and stand-up unit will brought home by orbit medical. -informed pt that home care is set up and they will call the pt when he is home. -reminded pt that he was diagnosed with acute bronchitis. When pt questioned about it, RN said that she will go over in depth. -told pt there were no restriction on his diet	RN reiterated to pt the o2 usa on pharmacy. On her return, : that the meds will take an ho as they were waiting for the D

4. Patient Journey Map

A visual document that would ultimately be shared with the clusters. Created on Visio, the journey map is plotted against a timeline that provides an overview of the discharge process from the patient perspective. To simplify and reduce the time to create patient journey maps, we designed our own template. The template helped standardize the layout, text, and color. In addition, as Ms. Okammor was unfamiliar with the software, we created a step-by-step instruction manual to create the patient journey.



Tailor made template of the patient journey map on Visio (above)
Visio supports easy import of excel files, thereby making the process more efficient (below)

PATIENT JOURNEY ON THE DAY OF DISCHARGE

Dec 31 2016

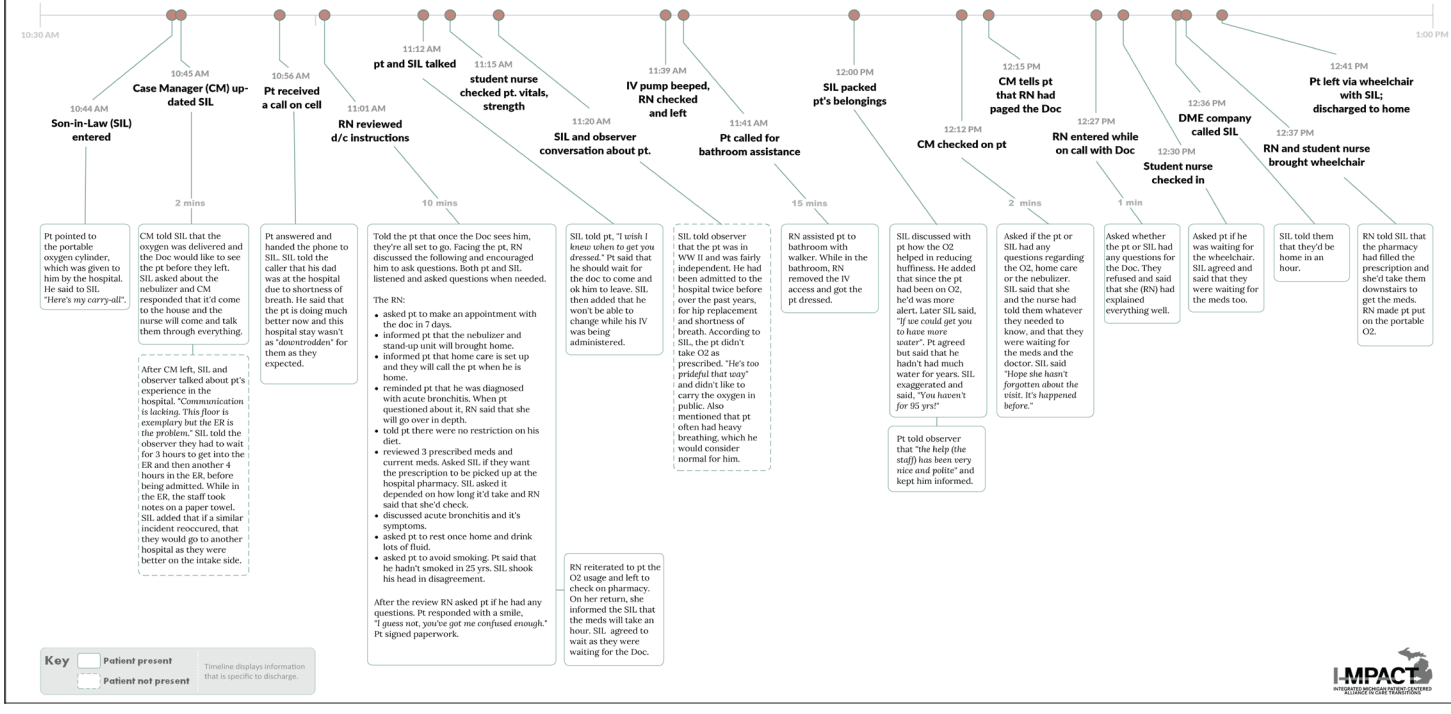
Hospital
Hospital Name,
City

PO
PO Name

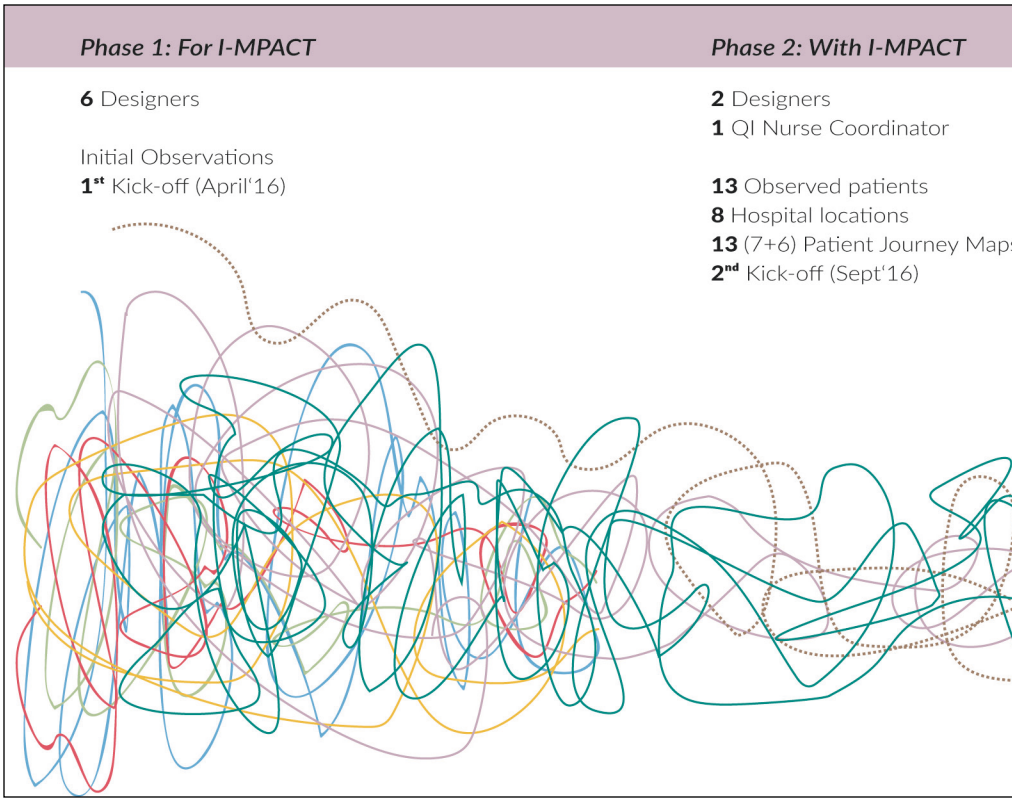
HF

Patient and/ or Caregiver Overview

The patient (pt) was in his mid-90s, and was admitted 5 days ago due to shortness of breath. He lived alone, was fairly independent, but had a daughter and son-in-law living close by who looked after him. He visited them 3 times a week. Pt was hard of hearing and had a history of COPD and a hip replacement. Pt was a smoker and claimed that he hadn't smoked for 25 yrs.



I-MPACT
INTEGRATED MICHIGAN PATIENT-CENTERED ALLIANCE IN CARE TRANSITIONS



Over the three phases, 3 kick-offs were held and 21 patient journey maps were created. Shown above is the breakdown of the patient journey maps.

During this phase we developed 7 patient journey maps based on observations in Michigan Medicine, St. Joes, and Heartland Heath Care Center. With frequent discussions and several iterations, Ms. Okammor felt more confident to conduct observations and create patient journey maps independently.

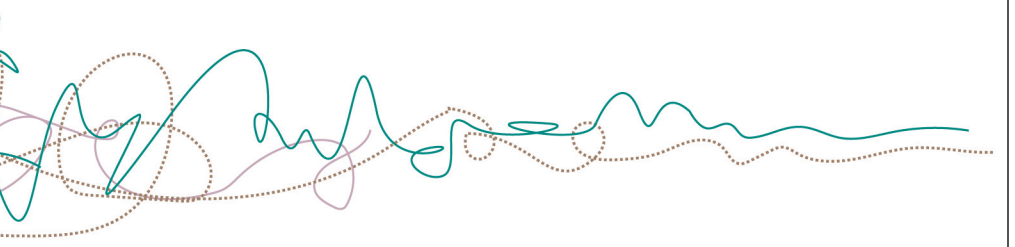
Phase 3: I-MPACT (Only)

Prior to the September kick-off, Ms. Okammor conducted most of the observations. I assisted her with the editing of the text, and created most of the patient journey maps. By the September kick-off, Ms. Okammor had familiarized herself with Visio was comfortable with

Phase 3: I-MPACT (only)

1 QI Nurse Coordinator
(1 Designer)

8 Observed patients
7 Hospital locations
8 Patient Journey Maps
3rd Kick-off (Feb'17)



the entire process. For the February kick-off, Ms. Okammor created the patient journey maps for all the observations she did. Overall the templates and guides that were created to gather the data and present it as a map, made the production of maps standardized and easier.



RESULTS



Patient Journey Map

The final patient journey map was a tabloid-size (11” x 17”) visual timeline describing the day of discharge from the patient perspective. The particular size was decided due to the easy availability of the paper and the largest size that can be printed from a regular office printer. As the patient journey maps were also shared with the clusters prior to the kick-off, it needed to be easily accessible and printable. Given the size, the map could also be printed across two, letter-size

papers to scale.

It provided an in-depth overview of the day a patient gets discharged from the hospital. It included the following information:

1. *Hospital and PO:* Name and location

2. *Patient information:* De-identified patient information to avoid revealing any of their protected health information (PHI). Indicated patient's age bracket, living arrangement, medical history, the reason for admission, and where the patient is going once discharged.

3. *Target Population:* Icon indicated the primary diagnosis of the patient, which was also the target population for a specific site. It can be one of five: Congestive Heart Failure (CHF), Acute Myocardial Infarction (AMI), Pneumonia, Chronic Obstructive Pulmonary Disease (COPD) or Skilled Nursing Facility (SNF)

4. *Timeline:* Time-stamp and description of each interaction. Quotations were often used in the description to indicate people's emotions and behaviors.

Its key features were:

- Custom-made for each hospital, based on on-site observations
- Visualized the current state of the entire discharge process, from the vantage point of the patient
- Documented interactions between patients, caregivers, and care team members

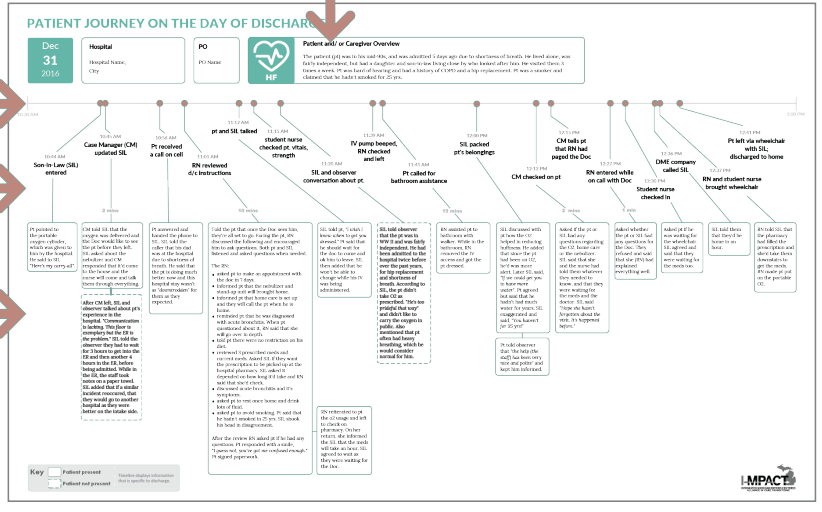
Some of the developed patient journey maps are attached in Appendix E for reference. On the right, is an annotated patient journey map, with an explanation of the information hierarchy and visualization.

De-identified patient information:
Includes patient's medical diagnosis, living arrangement.

Interactions on a timeline:
Each dot represents an interaction in the patient room, as observed.

First-glance information:
Includes the people involved and the purpose of the interaction.

In-depth information:
Provides a detailed description of every interaction.
Also includes quotes to highlight reactions and emotions.



Solid line box:
Interactions in which the patient is actively involved.

Connected Solid line box:
Interactions in which the patient is actively involved; with a different person or purpose.

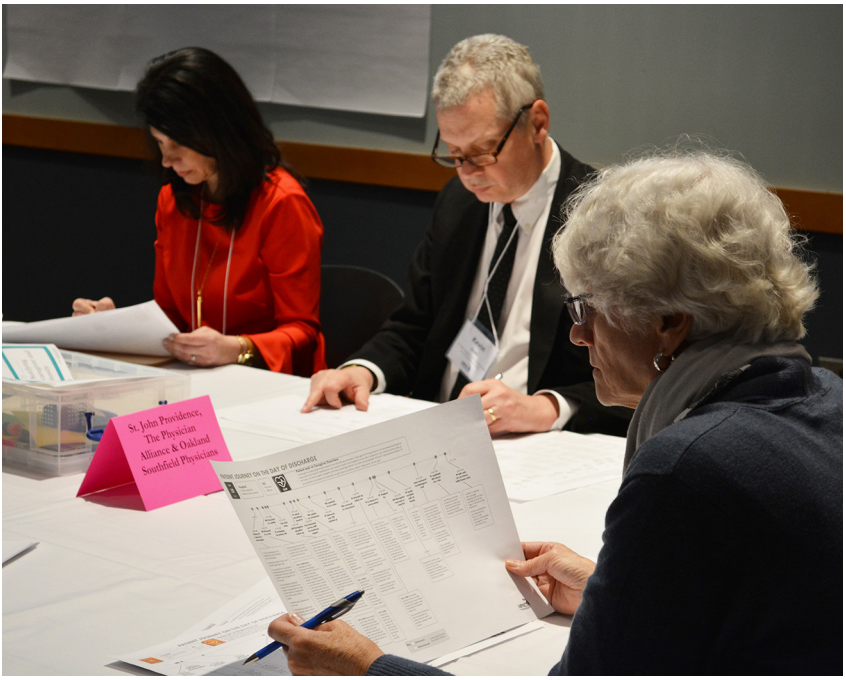
Dotted line box:
Interactions in which the patient is not actively involved.

Application of the Patient Journey Maps

The patient journey maps were used in the two kick-offs in September 2016 and February 2017, after the first one in April 2016. The task of each cluster building their own patient journey map (as done in the April kick-off) was replaced by providing them with the maps developed from observations at their own site. Distributed among the clusters after the patient panel and the game, it was used as a boundary object, to orientate and align the clusters toward the patient perspective. As it was developed specifically for each cluster, it allowed the team members to have a shared mental model of the discharge process specific to their hospital. It illustrated the current state of the discharge, an aspect which was challenging to address in the first kick-off.

The patient journey maps and a summarized transcription of the post-discharge phone interviews were distributed to the cluster after the patient panel and the game. Acting as the starting point and backbone for the rest of the day's activities, it was used to identify key activities that currently occur during discharge, and to create a care transitions timeline on a larger piece of paper. The patient journey map served as a specific reference point, which then allowed the team members to identify breakdowns in the discharge process based on their individual experiences, as well as the patient panel and the game earlier in the day. Once each cluster mapped the activities, on the bigger timeline, they were encouraged to go through the timeline, identify the root cause of the breakdowns, define a problem statement, and identify interventions. These sequential activities were also mapped on the same timeline, as a way for the clusters to see everything on one surface. This made it easier for them to go back and forth during conversations. They were also encouraged to take the timeline that they created, in case they wanted to refer to it later.





Participants reading the patient journey maps (and post-discharge phone interviews, if applicable) based on observations at their hospital site. The document helped demonstrate what actually happens versus what should happen.



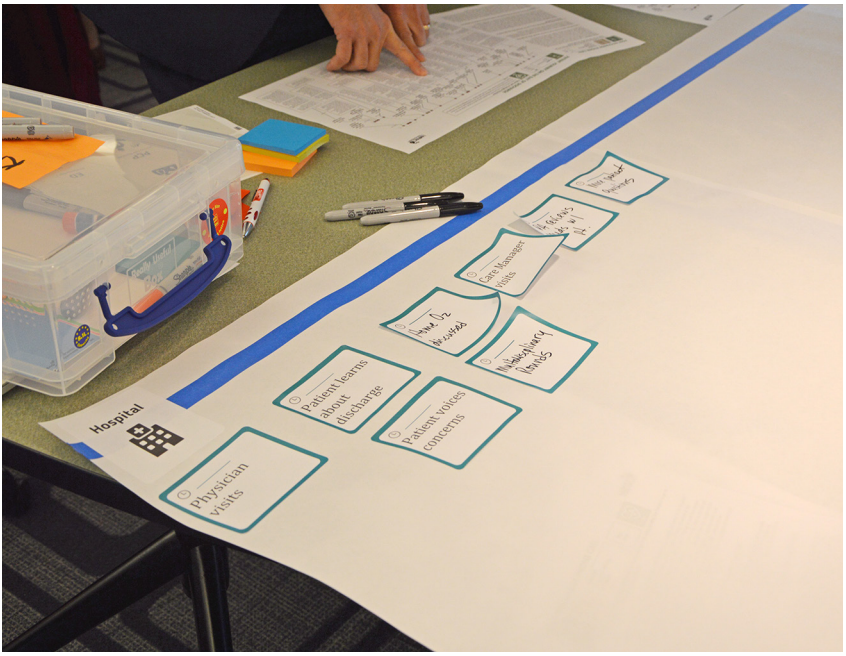


Acting as a boundary object, the patient journey map provided the participants an overview of the entire discharge process from the patient's perspective. Building a shared experience, it initiated conversations around discharge and engaged the multi-disciplinary members of a cluster.





Using the patient journey map as a backbone and reference point, the participants then proceeded to the big care tranitions timeline, where they mapped the activities that occur when a patient moves from the hospital to home.





Building on the care transitions timeline from the insights gained through the patient journey map, the patient panel and the game, the clusters were then able to identify breakdowns, develop a problem statement and develop 1-2 potential interventions.

Feedback on the Patient Journey Maps

The patient journey maps were used in 2 kickoffs, one in September 2016 and another in February 2017. Feedback on the patient journeys was received through:

- A survey completed by **34** participants and phone interviews with **2** participants after the September kick-off
- A survey completed by **36** participants and phone interviews with **3** participants after the February kick-off.

Takeaways from the map

The general feedback towards the patient journey map was positive. Figure 2 represents responses from the September kick-off while Figure 3 and Figure 4 represent responses from the February kick-off. A majority of the respondents found the patient journey maps to be valuable to identify issues within care transitions. The patient journey maps were successful in developing a shared mental model of the entire discharge process and understanding it from the patient perspective.

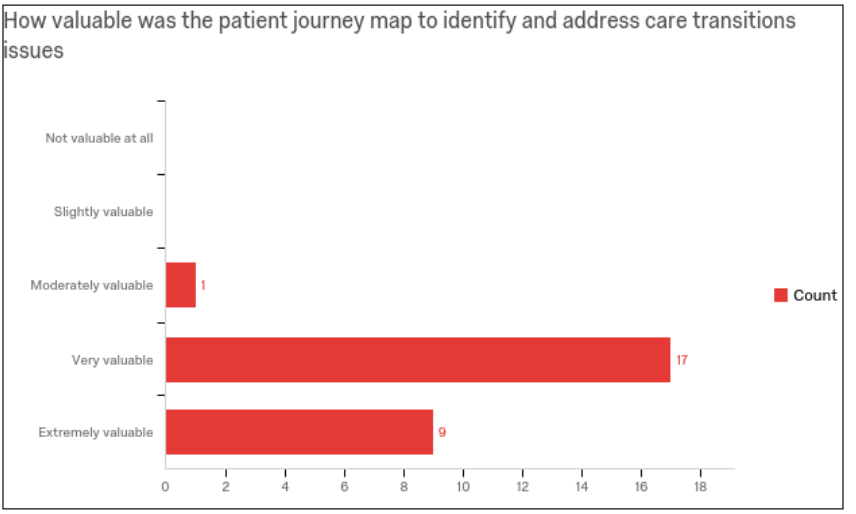


Figure 2: Responses from the September 2016 kick-off (34 respondents).

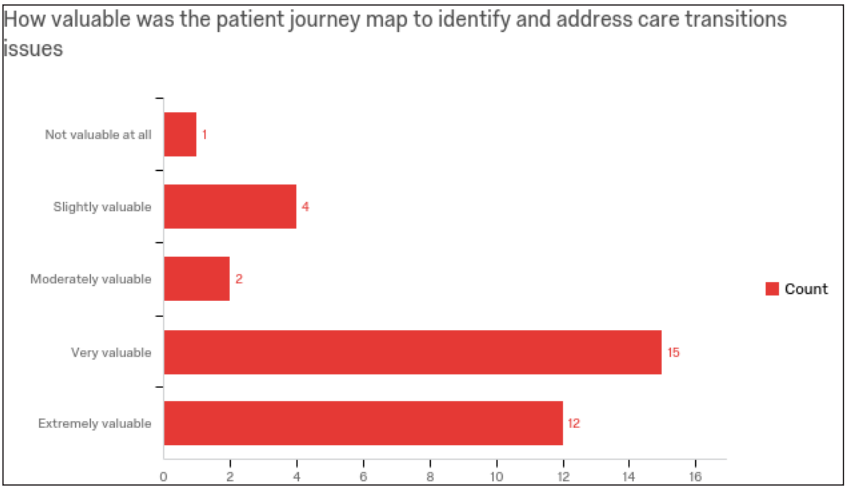


Figure 2: Responses from the February 2017 kick-off (36 respondents).

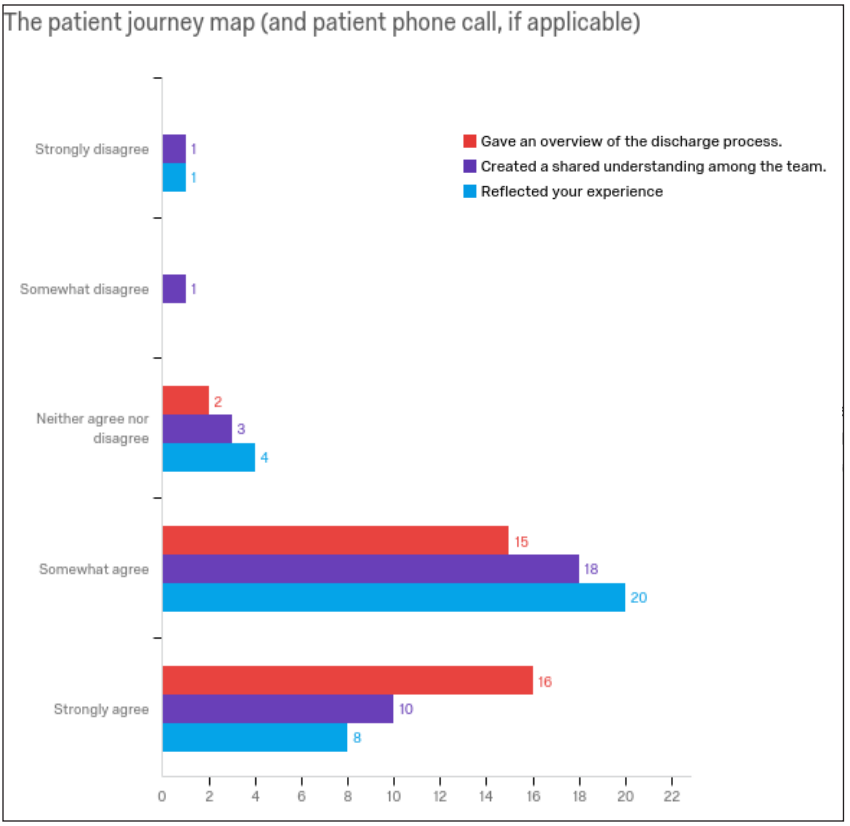


Figure 3: Responses from the February 2017 kick-off. Shows that the map was most successful in giving an overview of the whole discharge process, followed by creating a shared experience, and reflecting personal experiences.

Patient journey maps gave an overview of the discharge process and developed a shared mental model

In addition to the surveys, the interviews also supported the claim. In speaking with some of the participants, they agreed that it was helpful in providing a complete picture of what the discharge process looks like. One of the participants from the September 2016 kick-off said:

> *"the whole team was able to see that patient's discharge process from start to end. So I think that they were surprised... as far as how much time some of the things took. You know, some of the things that maybe we thought should have gotten done that didn't. Like maybe more education, things given to the patient... as an administrator or a manager (which a lot of those people are on our group), they don't see the daily activities that happen and you just assume a lot of things. And I think that review of that whole process was very helpful to open up some eyes, to tell you the truth."*

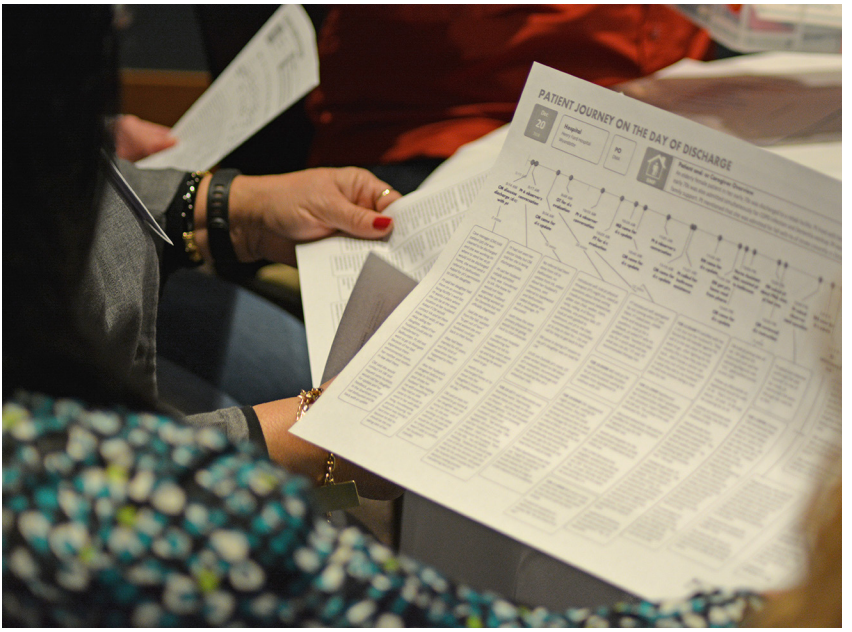


Another participant from September mentioned how the patient journey map provided a natural progression to move into problem identification and intervention development.

> *"the whole process mapping and the way you guys guided us through the observation days, it's really like an actual evolution of when you come to your problem statement and then your interventions design too."*

The same participant was interviewed again, after he attended the February kick-off. However, he had a different opinion:

> *"I feel like we used it a lot more in September. I think a lot of people just discounted it first on the face ... a lot of it had to do with the busy-ness of it."*



One of the participant's from the February kick-off, had access to 5 patient journeys as she was a part of the cluster that represented 5 hospital locations within the same system. She really appreciated the quantity as she was able to see patterns of typical discharge processes:

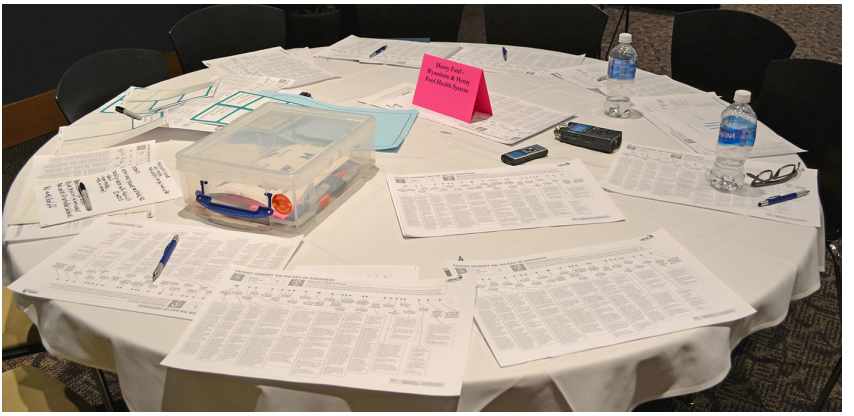
> *"You could see where some stuff gets bunched up much more so than in other spaces and there's very much the checklist... we need checklists in healthcare to make sure that each of the steps get done, but then sometimes in our efforts to complete the checklist we get quite a few things in just 15 minutes. It becomes clear on paper when you look at this bunched up amount of time that 15 things were done... what we did ... we needed to make sure that the vast majority of education follows up out-patient and really try and streamline what all we're trying to throw at the patient when they're really focused on just trying to get home and be safe."*



Patient journey maps helped identify breakdowns from the patient perspective

Participants noticed several interactions across the maps which encouraged them to have conversations about it further. During the February kick-off, we were able to record the conversations that the clusters had on the day. Audio clips from some of the clusters who referred to the patient journey maps revealed the kind of reactions they had from the map Some examples of the themes that the maps helped the clusters recognize were:

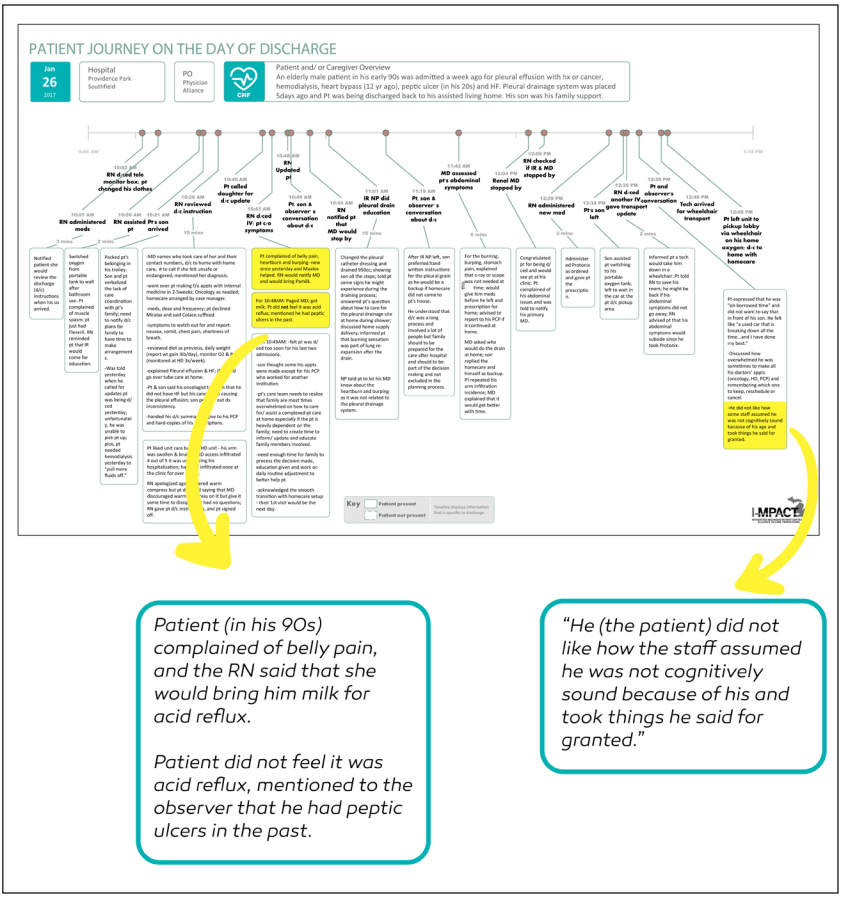




Patients not being heard

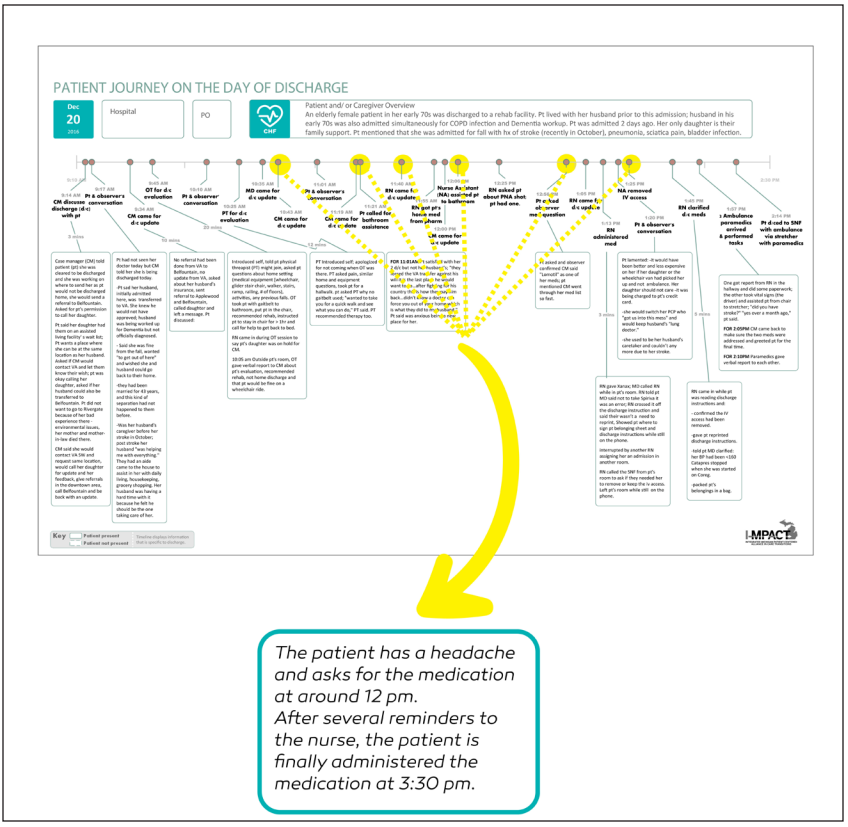
An example shown below is that of an elderly man in his 90's who was given milk for his belly pain. While the patient thought it was due to his ulcers, the nurse explained that it could be acid reflux. Reading this, one of the participants from a cluster remarked,

> *"See, I resonate with this so much. I see so many patients that are … He says he didn't like that staff assumed that he was not cognitively sound because of his aging. And I see that happen all the time."* *(transcribed audio clip from the actual conversation around this patient journey map)*



Another example shown below, from another cluster included a reaction towards the delay in administering pain medications to a patient (in her 90s), after she reminded the nurse several times. The participant reacts,

> *"I'm embarrassed to read this... the part where we keep telling her that we'll get back to her, we'll get back to her... and then give her the pain meds is for her sinus infection". (transcribed audio clip from the actual conversation around this patient journey map)*



Unscheduled follow-up appointments

A few participants within the cluster that had 5 patient journey maps, noticed that in 4 out of the 5 journey maps, follow-up appointments weren't made at the hospital.

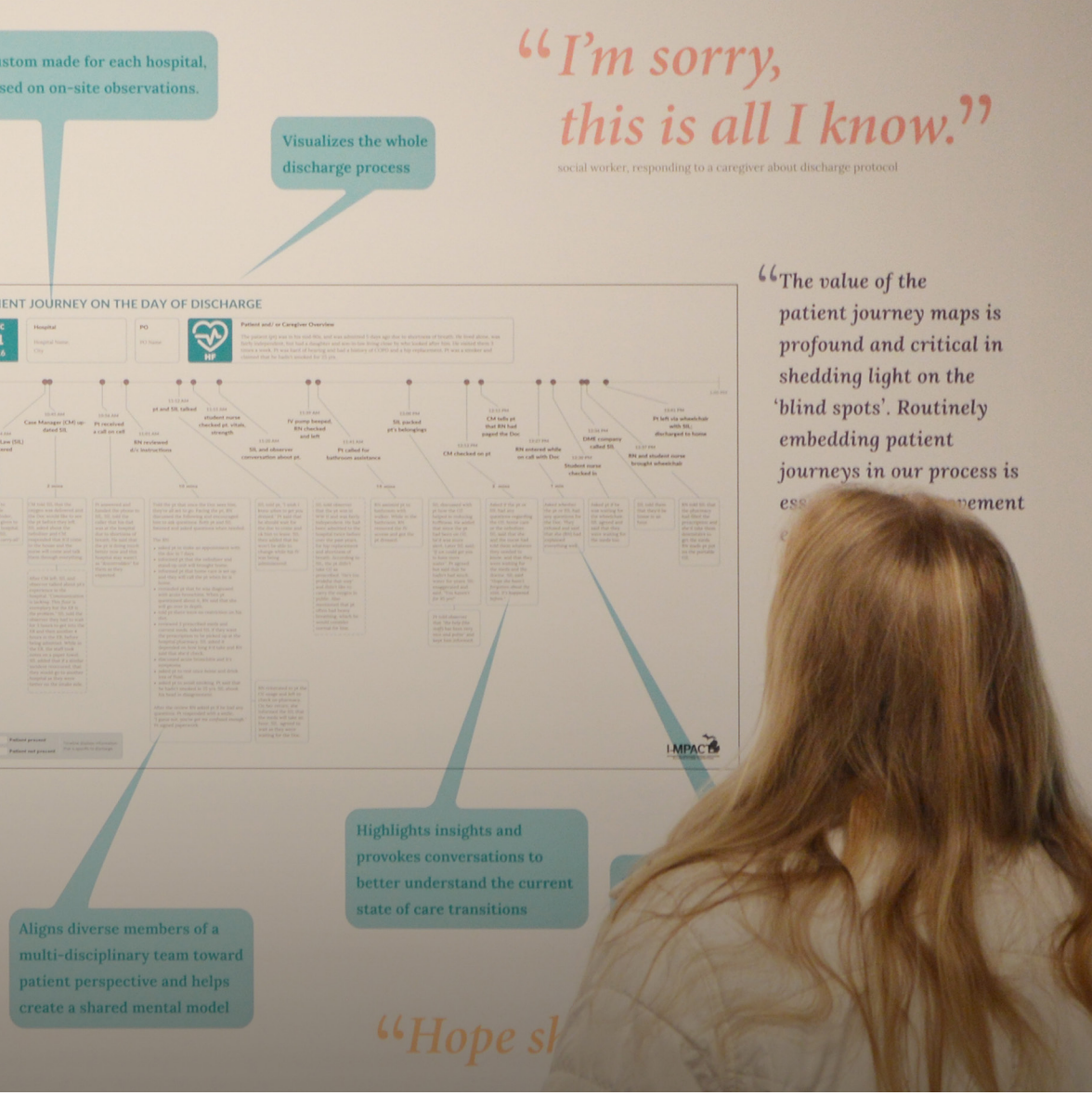
Gaps in Durable Medical Equipment (DME) arrangements

Based on one of the experiences, the patient did not receive his nebulizer for three days after being discharged.

Overall, the participants found value in the patient journey maps. It allowed them to see the current discharge process and reveal gaps from the patient perspective. It also helped in creating a shared mental model. While most groups used the patient journey maps, some did not. One of the reasons identified through the interviews, was the overwhelming amount of text on some of the maps. Perhaps, in the future, one may need to address this issue in order to avoid the maps not being read. Some of the maps that could potentially be visually very busy, due to multiple or long interactions, should ideally be edited further.



FUTURE WORK, DISCUSSION AND CONCLUSION



Future work

While the patient journey maps were created in the context of care transitions, it may be worth exploring how it can be improved further, or used differently.

Visual Improvement

One of the comments from an interview exhibited how a team did not refer to the patient journey map as it was "overwhelming", in

that it was too text heavy. This may occur when there are too many interactions during an observation, which may result in too many data entries/text boxes on the map. While the map cannot change visually given the skill and resource constraints, ensuring that the patient journey map is visually less cluttered and easier to follow, may be important for clusters to engage with the map. Editing the text further, or extending the timeline across 2 (or more) pages may be a way to achieve this.

Given that the map is a boundary object to develop a shared understanding and initiate conversations in a short period of time (early on in the 6-hour workshop), it may also be helpful to explore if there are other ways to visualize this information. One of the requirements for creating the maps was that it needed to be easy to produce with as less of a learning curve as possible, not requiring much visualization skills or software expertise. Visio addressed these needs sufficiently. However, one could explore other ways to represent the information in a way that is quicker to consume while still preserving the complexity and details of the interactions.

An example of alternate visualization was a book created for the graduate thesis exhibition wherein the visitors flipped through the book within a few minutes (See images in Appendix F). It evoked a sense of empathy and the reader understood what occurred on the day of discharge, and where some of the gaps were. Since that was created for the specific context, it was carefully designed and required sufficient time and skills. While it may not work for scalability, further research could look into other ways of information visualization.

Maps for other points along the continuum of care

Although the patient journey maps were specific to the day of discharge, having more of these along the journey of the patient can be valuable to provide a clearer picture of the transitions of care. For example, the patient's journey on the day of the follow-up with their

Primary Care Physician (PCP), a day at home, could provide information and possible gaps that occur once the patient leaves the hospital. This may bring up the issue of patient access and privacy, and require additional time, but may still be worthwhile to explore the possibility.

Multiple patient journey maps per site

One of the participants, who had access to 5 patient journey maps for one cluster, really appreciated the quantity as they gave her "strong sense of the trends". She had also attended the previous kick-off, where she had one as a reference point. While her team still referred to the patient journey map, she felt that it was not something that she could "bring back a broad-based committee and say, 'This is likely to be our standard'". While there is a clear value in creating multiple patient journey maps, there is a time and skill constraint (to observe and create maps) associated with it.

Analysis of multiple patient journey maps

As of now 21 patient journey maps have been created, and more will be created over time by the I-MPACT CC. While each map is valuable for each cluster, the cumulative information all maps can generate, can be very valuable for the I-MPACT CC. Codifying and categorizing each map to identify breakdowns and underlying themes can be very valuable to get a sense of more frequently occurring breakdowns during a given time period. In addition, it could make referring back to maps based on the certain theme, easier.

Application or distribution of patient journey maps in other contexts

Project partner and I-MPACT's former program director, Lakshmi Halasyamani, saw a lot of potential for a tool such as the patient journey map. According to her,

"The value of patient journey maps is profound and critical in shedding light on the 'blind spots' in healthcare. Routinely, embedding patient journeys in our process is essential for improvement efforts, and also

has a significant impact on the self-awareness and communication within the provider team."

She sees its applicability outside of the I-MPACT CQI and may possibly want to explore if this process of creating patient journey maps can be helpful and/or transferred in another setting, in the future.

In addition, I-MPACT's current program director, Grace Jenq, M.D., also perceived the value that the maps could provide by making it more accessible, outside of the I-MPACT kick-off. She said,

"We should encourage the clusters to share this with front line staff, not just the administrators. This is really a powerful story that will get people thinking and change their behaviors."

As there may be opportunities for the patient journey map to be developed for other contexts, it is also important to consider its purpose. In the context of the kick-off, its primary aim was to create a shared experience and facilitate conversations around the current state of care transitions. However, if the purpose is to share insights, then it is possible that the map should be developed slightly differently. For example, maybe more observations need to done in order to create a synthesized journey map that is a more representative and reliable – this would be more typical of the customer journey maps.

Ethical considerations during observations

As mentioned earlier, Ms. Okammor, having been a Registered Nurse (RN) prior to joining I-MPACT as a QI Nurse Coordinator, had to consciously pull back during the observations. However, if she observed the patient doing something that may adversely affect them, she would encourage them to seek assistance or clarification from their nurse or other care team members. This brings up the issue of values and ethics. Coming from her community of practice as an RN, she would do her best to ensure patient safety and care. As a designer observing, I was unaware of situations when the patient would

inadvertently impede their recovery, or risk their health.

Although I did not directly address the ethical considerations, this would need to be addressed in the future by other researchers. In this context where the lives of human beings are at stake, finding a balance between conducting observations in an unobtrusive manner, and intervening in the process to avoid an adverse event, becomes critical. At what point in the process does one (the observer) intervene?

Limitations

Access to patient and HIPAA compliance

Despite the protocols we developed for observations, which required each site to identify patients beforehand, it could still be hard to find a patient. Either the patient would not give consent to be observed, or no longer be discharged (more often due to medical reasons). That resulted in observing a patient who may not belong to the specific target population. Even though that would provide an overview of the discharge process, some components, like the education, or physician interaction, could be different. Furthermore, in order to stay compliant with HIPAA, we were unable to personalize the patient journey, by adding names, photographs, or other details. The restrictions that HIPAA posed, also directed the research methods used, and the points in the care transitions where the methods could be used.

Observers' bias in observations

As a designer, or a nurse, coming from different communities of practice, we looked at things differently. As a nurse, one focused on the tasks and the sequence it was being done in. It also included an aspect of evaluating the staff, if they were going things as per protocol. As a designer, one focused on the interactions between patient and providers, patient reactions and their journey through the day. We spent a substantial amount of time sharing our practices and previous

experiences, developed tools, and conducted several observations, in order to have consistent data that is non-evaluative and patient-centered. However, there was still a variation in the maps. The need to address the observer bias would become even more important in the future, if someone else from a different community of practice was required to conduct such observations.

Hawthorne effect

This limitation was perceived by Ms. Okammor and myself, during some of the observations, wherein the duration of the discharge was shorter than usual. This was something that an observed patient had pointed out as well. While the physician normally visited the patient later on the day, he visited much earlier on the day of discharge, when an observer was present. The presence of an observer in the room, can affect the way the behavior of people being observed (Shuttleworth 2009).

Getting feedback on the patient journey maps

Working on the different timelines: academic and project, adjustments needed to be made for planning and executing the interviews. Due to the lack of time personally, I was unable to interview all the people I had initially planned to. In addition to my constraint, getting access to available participants from the kick-off was a challenge. While I was able to derive some insights, it would have been better to hear from more people, or get more of their time to ask more in-depth questions.

Discussion

So far, 21 patient journey maps have been created. 6 were created and used in the September kick-off, while 8 were created and used in the February kick-off. The remaining 7 were developed prior to the kick-offs, during the process of co-creating with I-MPACT, and training Ms. Okammor.

Based on the interviews, surveys, and the audio data from the kick-offs, it can be said that the patient journey maps effectively coordinated, translated, and aligned a multidisciplinary team toward the patient perspective, and created a shared understanding of the current discharge process. The patient journey map presented the information as a narrative which prioritized the patient. This visualized experience of the discharge from the vantage point of the patient not only evoked a sense of empathy among the team members, but also provided a complete picture of discharge. Participants were surprised to learn how certain tasks took longer, how some were skipped, and the sheer number of tasks that happened in a given window of time. Reading through the maps and phone calls, participants instantly related and reacted to certain events, which initiated conversations around what currently happens and where the breakdowns occur. It was even more interesting to see when participants identified some patient concerns which highlighted the patient's unmet needs, and the lack of respect and responsiveness towards the patient. Communicating this interpersonal and behavioral information was one of the key things the maps was aiming to achieve. Overall, the tool served its purpose to keep the patient in the foreground. Acting as the patient proxy, the presence of this tool became even more crucial as there was not always a patient at the table. It acted as an effective conversation starter, thereby also increasing collaboration through creating a shared experience in order to work towards a shared goal.

Given the current process maps in healthcare, and the customer journey maps in design, the patient journey maps were novel in aspects of their creation and content. In healthcare, process mapping is done using the Lean thinking (Trebble, et al. 2010) and similar types of methods which lead to the identification of valuable and non-valuable steps. That way, steps that do not provide value can be eliminated, making the process more efficient. On the other hand, in design, customer journey maps are created from ethnographic research methods (like interviews and observations), and help visualize

the experience from the customer's point of view. The experience, is an interpretation and synthesis of several customers, represented as a persona (Kumar 2013; Stickdorn and Schneider 2011). It visually represents a customer's interactions and emotions of using a product or service, in order to identify the gaps. The patient journey map, while it intended to serve the same purpose as a customer journey map (show the experience and gaps from the patient perspective), was still different. Unlike the customer journey map which is interpretive and cumulative, the patient journey map was descriptive and specific. Having a descriptive and specific patient journey map allowed for it be easily and quickly produced, without requiring the skills to interpret the data. At the same time, the specificity of the map grounded each cluster in a very real experience of a patient at their own hospital, and served as a boundary object to create a shared experience.

These patient journey maps also contributed towards providing a different type of evidence in healthcare. Focusing on the "patient experience" pillar of care as defined by Doyle et al (2013), the patient journey maps are qualitative, and centered around the real-life experience that highlights interpersonal and emotional aspects of the delivery of care. The maps can be considered an example of case study: grounded in a "lived reality" (Hodkinson and Hodkinson 2001), it helps capture the "noise" (Gijo, et al. 2013) that cannot be captured through quantitative research methods (like surveys). Similar to case studies, the maps cannot be generalized (Yin 1984) as they are based on a single patient's experience. However, using it in combination with the existing quantitative research methods may help to understand the issue of care transitions more holistically. Integrating the qualitative and quantitative approach may collectively address the three pillars of quality: patient experience, patient safety and clinical effectiveness (Doyle, et al. 2013).

Conclusion

One of the key learnings from this project has been the effect of being integrative to ensure the sustainability and longevity of what we developed. Co-creating with the project partner, and working under the time and resource constraints, we designed and implemented a novel research process and tool for the specific context. Furthermore, in the socially complex context of healthcare, we (the designers) were co-actors in the co-design process. We adopted a maternalistic and fraternalistic approach to co-design (Thorpe and Gamman 2011). When training Ms. Okammor to conduct observations, the iterative learning-by-doing process allowed us to "dose" the learning. It helped Ms. Okammor build her own skills by "drawing upon her own assets". At the same time, while creating the process and protocols for observations, we were more "co-operative". Having equal agency and responsibility in the process was important to ensure equal ownership, which in turn would motivate one to carry on the process in the future.

In addition to creating sustainable processes, having worked with our project partner over the two years, we also witnessed a few changes in the organizational culture. One of the biggest reasons for the change was having an open-minded leader who was willing to explore and incorporate a co-design approach for better collaboration and engagement. This was witnessed at one of the I-MPACT Collaborative Wide Meetings (known as CWM), where the I-MPACT CC organized an interactive, co-creative workshop without any involvement from the designers. The project partners also became more comfortable with a prototyping, iterative approach. Over time, there were instances where we noticed the I-MPACT CC members using design vocabulary, or noticed them observing how certain teams were more engaged than others, and what were the attributes.

Another key learning from the project was the importance of our (the designers') role as facilitators. When refining the kick-off, an important

consideration was the making it as facilitator-free as possible. While the kick-offs ran successfully, in that each cluster was self-directed, having a facilitator provided a value which cannot be overlooked. Upon reviewing the conversations after the kick-off in February, I noticed how some clusters still defaulted to discussing what should happen on the day of discharge. Some conversations lacked the patient voice/ perspective. Facilitation in such cases is essential to ensure everyone is on track and that everyone is included in the discussion (Kaner 2013).

In conclusion, the project encouraged healthcare providers, to look at problems differently and approach them differently. The patient journey map, allowed a diverse group of healthcare providers to gain insights differently. It helped frame the current state of care transitions from the patient's point of view, and encouraged healthcare providers to be more patient-centric by being more empathetic towards the patient. The design-led structure of the kick-off day, on the other hand, allowed them to approach things differently. Moving away from the linear, and evaluative mindset, the groups were pushed towards an iterative, exploratory and collaborative mindset, and provided a different type of evidence, in order to address the wicked problem of care transitions.





I-MPACT team (above) and the MDes 2017 cohort (below)

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Appendix A

Some of the HCAHPS questions that had to be avoided in the post-discharge phone interviews (Refer to HCAHPS 2017 for full survey):

• During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.

• When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.

• When I left the hospital, I clearly understood the purpose for taking each of my medications.

Post-discharge phone interview questions during the pilot observations

1. What did you expect to have to do to care for yourself when you got home?

2. How was what you actually had to do to care for yourself when you got home different than what you expected?

3. Is there anything you can think of that would have made leaving the hospital and going home easier?

4. Is there anything else you would like to tell us about how you felt when leaving the hospital to go home or how you felt when you got home?

5. Is there anything we should do differently when asking other patients if we can observe them talking to hospital staff and doctors about going home, or when we call patients to follow-up with them?

Appendix B

Restructured post-discharge interview questions

1. Is there anything you would like to tell us about how you felt when leaving the hospital to go home or how you felt when you got home?

2. What did you expect to have to do to care for yourself when you got home?

3. How was what you actually had to do to care for yourself when you got home different than what you expected?

4. Is there anything you can think of that would have made leaving the hospital and going home easier?

Appendix C

Notetaking Sheet

Hospital:
Target population:

Observer:
Date:

Time	People	Interactions	Patient status	Observer's Notes
		Write down the interactions of different care team members with pt *Quotes that highlight anything surprising/ key incidents for ex. conversations pertaining to discharge, pt education, follow up appointments*	*Write down pt opinions, behaviors, possible conversations with the caregiver* *Quotes that highlight anything surprising* *Your interactions with the pt*	*Note down your thoughts* *Note down your interactions with the medical team*

Appendix D (i)

Observations Checklist (within the observation summary) sent out to hospital sites prior to observations

I-MPACT Observations Checklist - Project Associate

Before Observations	Staff Responsible
☐ Communicate regarding observations with I-MPACT CC. Notify cluster organizations & unit care team (charge nurse, clinical nurse specialist, nurse manager/supervisor) about the observations.	_____
☐ Arrange logistics of observations with I-MPACT CC, including dates, times, and locations.	_____
☐ Seek out required organizational approval processes for observations of patients (e.g., use or modification of existing volunteer/visitor processes, occupational health, HIPAA policies).	_____
☐ Coordinate appropriate approval processes with I-MPACT CC (e.g., relaying messages to relevant staff; working with HR to complete appropriate occupational health, HIPAA, and code of conduct paperwork; getting IDs if needed, etc.).	_____
☐ Identify a physician champion for the observation process who is associated both with I-MPACT and with the unit and target population. The physician does not need to be on-site on that day.	_____
☐ Prepare information sheets for day of observations. I-MPACT provides a template form that can be printed by cluster locations.	_____
☐ Ensure a member of the I-MPACT team is on-site for observations.	_____

Day of Observation Visit	Staff Responsible
☐ Identify appropriate patients for observation (e.g., patients discharging on that day, patients in the targeted population). Preferably alert & oriented patients not in contact precaution rooms	_____
☐ Orient I-MPACT CC personnel: find place for belongings, bathrooms, water, food, lunch break schedule, etc. Communicate with I-MPACT CC regarding updates or last minute changes.	_____
☐ Ask verbal permission from patients for observation and phone call. Provide patient information sheets.	_____
☐ Introduce the I-MPACT CC to the relevant care team members, for example the charge nurse, patient, and caregiver. Notify physician / medical provider of observed patients.	_____
☐ If the patients originally identified are no longer being discharged, identify other patients who could be observed on the day of observations.	_____
☐ Optional: Schedule follow-up calls between the observed patients and I-MPACT CC to not conflict with follow-up phone calls from the cluster's care team and/or care management.	_____

Appendix D(i) (continued)

Observations checklist (within the observation summary) sent out to hospital sites prior to observations

People & Processes Continued

Physician champion / I-MPACT Core Team Lead

Be knowledgeable and supportive of I-MPACT observations. Act as internal contact person if there are any questions regarding the nature and occurrence of the observations.

- Communicate proactively with unit, unit nurse manager/supervisor/charge nurse, nurse clinician specialist, and staff regarding the nature and occurrence of I-MPACT observations.
- Coordinate with the project associate to identify appropriate patients for observation (e.g., patients discharging on that day, patients in the targeted population, patients alert and oriented, and patients without contact precautions).
- If not serving as the physician for patients being observed, identify the physician for patients being observed and make the introduction/connection between the I-MPACT CC and that physician.

Appendix D (ii)

Hospital Information Sheet

I-MPACT OBSERVATION INFORMATION SHEET

Integrated Michigan Patient-centered Alliance on Care Transitions (I-MPACT) is a Blue Cross and Blue Shield of Michigan supported Collaborative Quality Improvement Initiative (CQI) that is housed at the University of Michigan.

The purpose of the observers from I-MPACT coordinating center (CC) is to conduct a one-time, unobtrusive, contextual observation. Our focus during the observation is the interpersonal, environmental, physical, communicative, behavioral and procedural aspects of the hospital discharge process, with special attention paid to patient and caregiver comprehension. These are intended as informal ethnographic observations to capture qualitative information from the patients and/or caregivers' perspective. No Protected Health Information (PHI) of the patient will be collected during the observation, and no personal information of the healthcare workers will be collected either.

Furthermore, if the patient agrees, we will do a follow-up phone call after discharge to discuss their care transition experience. We would make the call within 3-7 days of discharge.

Here are the questions we would ask the patient and/ or caregiver during the post discharge phone call (from Hospital/ skilled nursing facility):

1. Is there anything you would like to tell us about how you felt when leaving the hospital to go home or how you felt when you got home?
2. What did you expect to have to do to care for yourself when you got home?
3. How was what you actually had to do to care for yourself when you got home different than what you expected?
4. Is there anything you can think of that would have made leaving the hospital and going home easier?

The information gathered from the observation and the post-discharge phone call will be shared with this institution for care transition quality improvement purposes.

Our mission:

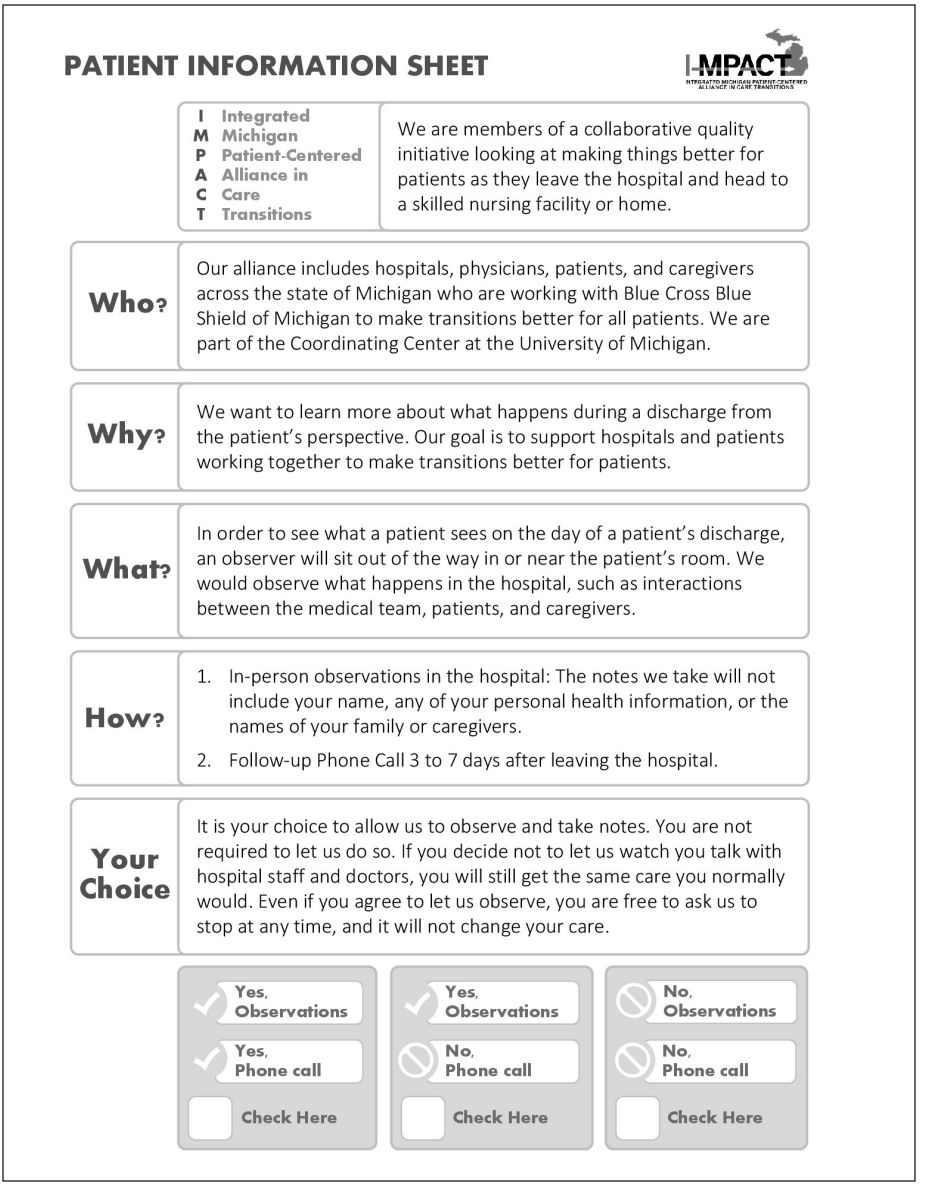
I-MPACT is a patient-centered, data-driven collaborative that engages healthcare organizations and patients throughout Michigan in developing and implementing innovative approaches for improving care transitions.

For more information on I-MPACT, please log on to:

http://www.valuepartnerships.com/vp-collab/transitions-of-care/

Appendix D(iii)

Patient Information Sheet (Front)



PATIENT INFORMATION SHEET

I-MPACT

I Integrated M Michigan P Patient-Centered A Alliance in C Care T Transitions	We are members of a collaborative quality initiative looking at making things better for patients as they leave the hospital and head to a skilled nursing facility or home.
Who?	Our alliance includes hospitals, physicians, patients, and caregivers across the state of Michigan who are working with Blue Cross Blue Shield of Michigan to make transitions better for all patients. We are part of the Coordinating Center at the University of Michigan.
Why?	We want to learn more about what happens during a discharge from the patient's perspective. Our goal is to support hospitals and patients working together to make transitions better for patients.
What?	In order to see what a patient sees on the day of a patient's discharge, an observer will sit out of the way in or near the patient's room. We would observe what happens in the hospital, such as interactions between the medical team, patients, and caregivers.
How?	1. In-person observations in the hospital: The notes we take will not include your name, any of your personal health information, or the names of your family or caregivers. 2. Follow-up Phone Call 3 to 7 days after leaving the hospital.
Your Choice	It is your choice to allow us to observe and take notes. You are not required to let us do so. If you decide not to let us watch you talk with hospital staff and doctors, you will still get the same care you normally would. Even if you agree to let us observe, you are free to ask us to stop at any time, and it will not change your care.

☑ Yes, Observations	☑ Yes, Observations	⊘ No, Observations
☑ Yes, Phone call	⊘ No, Phone call	⊘ No, Phone call
☐ Check Here	☐ Check Here	☐ Check Here

Appendix D (iii) (continued)

Patient Information Sheet (Back)

OPTIONAL PHONE CALL INFORMATION

What Next?

After you leave the hospital, we would like to call you and talk with you about how it went transitioning into caring for yourself at home.

Here are the questions we would ask:

1. Is there anything you would like to tell us about how you felt when leaving the hospital to go home or how you felt when you got home?
2. What did you expect to have to do to care for yourself when you got home?
3. How was what you actually had to do to care for yourself when you got home different than what you expected?
4. Is there anything you can think of that would have made leaving the hospital and going home easier?

Your Choice

Allowing us to call you is not required for your participation.

You can choose to only allow us to observe what happens in the hospital without following up by phone after you leave.

If you do agree to let us call you once you get home, let us know how and where to reach you below.

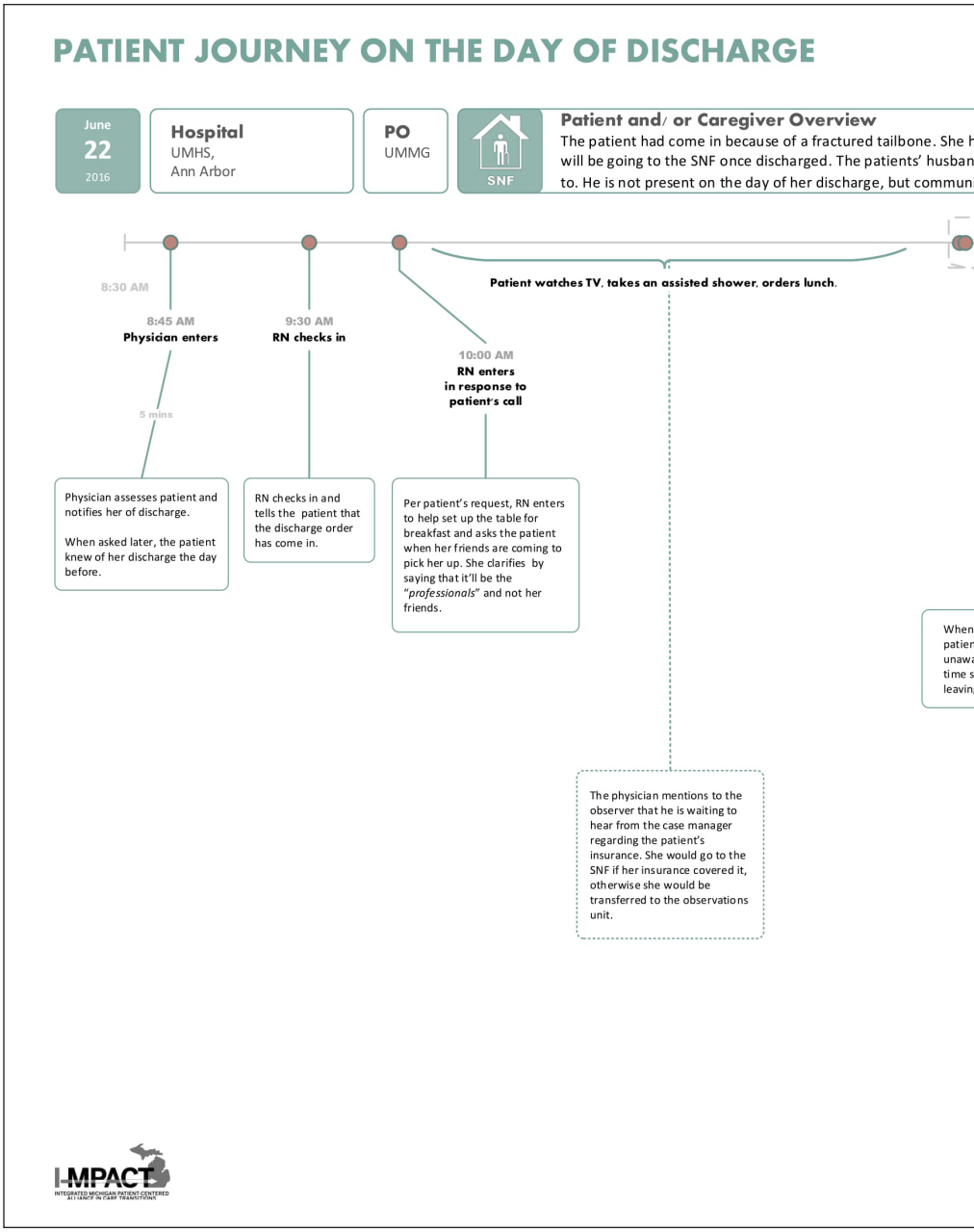
If Yes For Phone Call

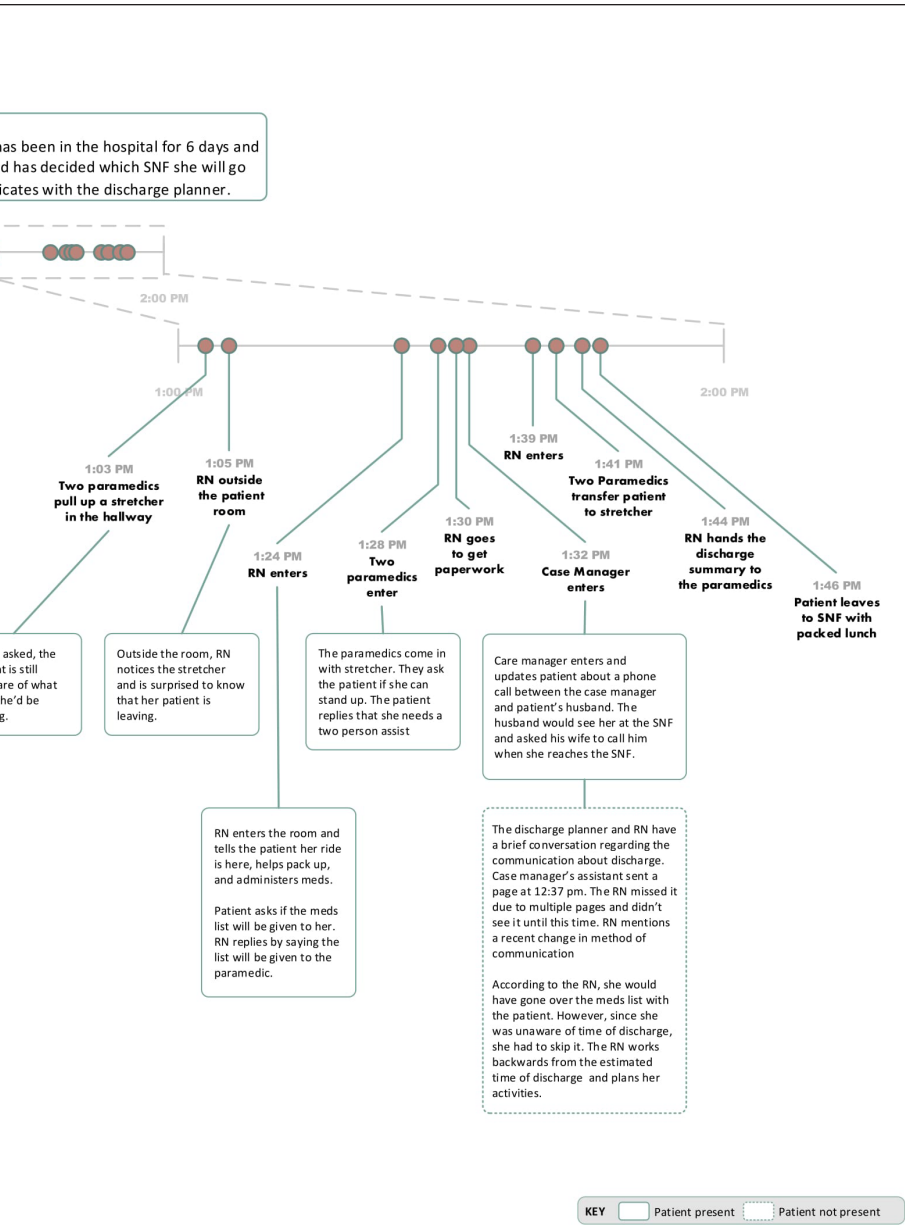
Phone Number

What name would you like us to use when we call you?

Appendix E

Examples of Patient Journey Maps (An earllier iteration): 1

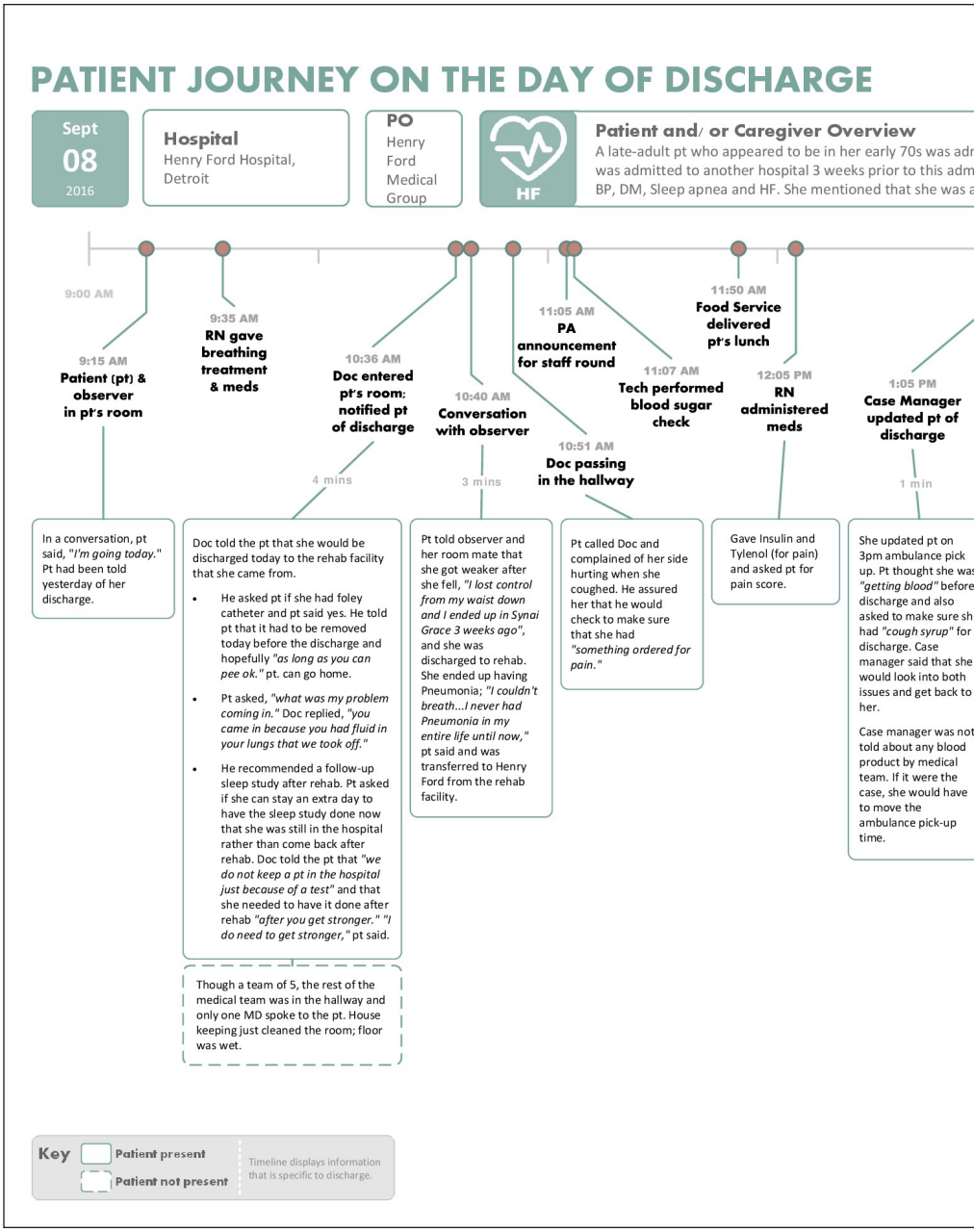




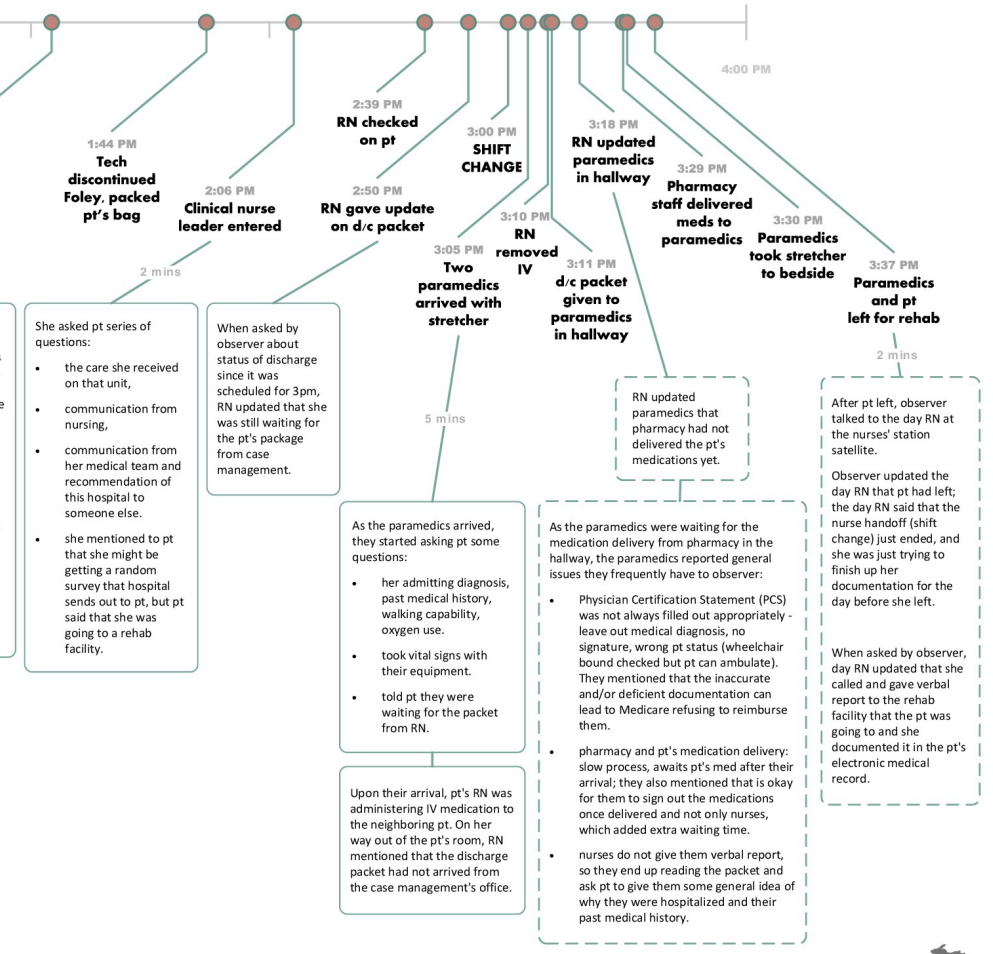
The timeline displays discharge specific information on the day of discharge.

Appendix E (continued)

Examples of Patient Journey Maps (Recent): 2

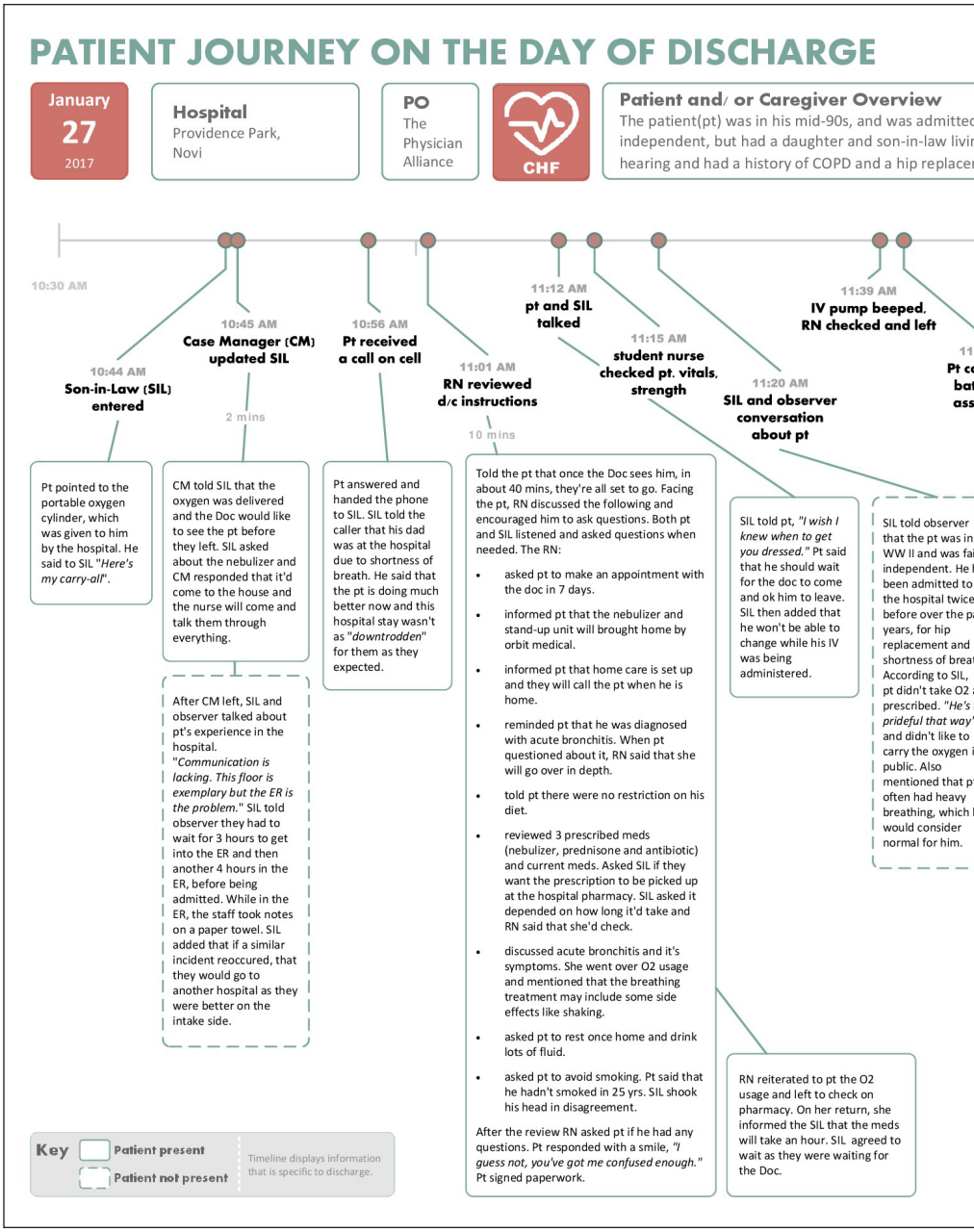


mitted 3 days ago from a rehab facility s/p fall from her home and
ission. Pt was on oxygen via nasal cannula. Pt mentioned she had
grandma and was being discharged back to the rehab facility.

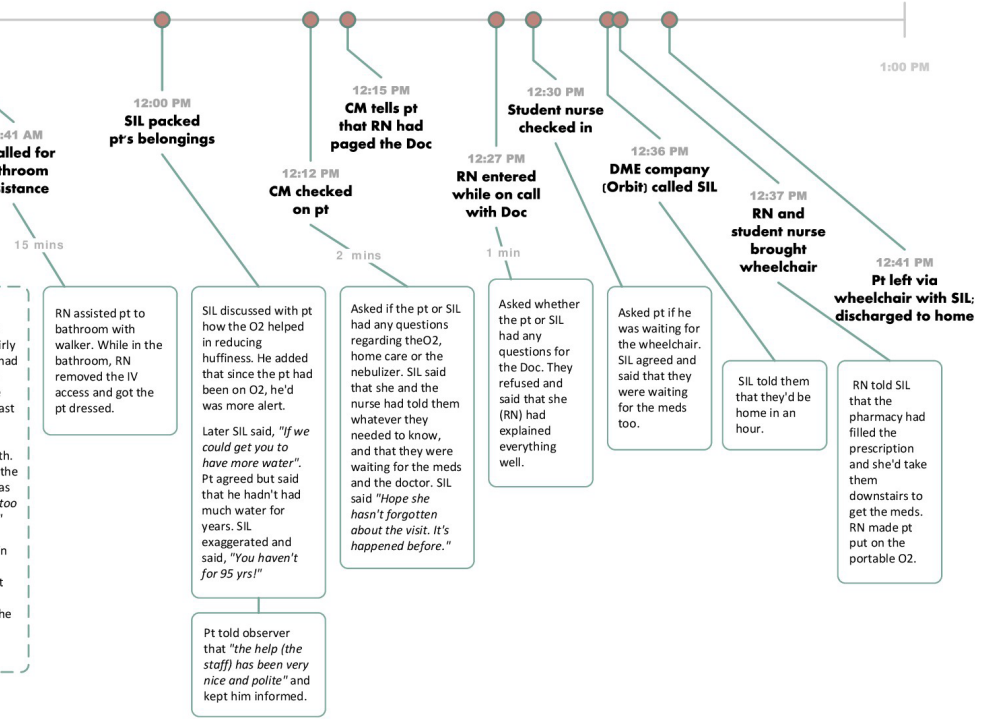


Appendix E (continued)

Examples of Patient Journey Maps (Recent): 3



d 5 days ago due to shortness of breath/ acute bronchitis. He lived alone, was fairly
ng close by who looked after him. He visited them 3 times a week. Pt was hard of
ment (due to fall). Pt was a smoker and claimed that he hadn't smoked for 25 yrs.



Appendix E (continued)

Post-discharge phone call (for Map 3)

POST-DISCHARGE PHONE CALL

Discharge: January 27 2017

Phone Call: February 2 2017

Hospital
Providence Park
Novi

PO
Physician
Alliance

CHF

1. Is there anything you would like to tell us about how the pt felt when leaving the hospital to go to home or how he felt when he got home?

SIL response: Once pt and SIL(son-in-law) got home, there was a confusion about the nebulizer. The DME company, Orbit, brought both the nebulizer and O2 condenser, but apparently was supposed to get the O2 condenser only. The nebulizer was to come from some other place. Due to Obamacare, Orbit had to take back the nebulizer and it was only 3 days later the pt got his nebulizer.

2. What did the pt expect to have to do to care for himself when he got home?

SIL response: The SIL said that the patient "*screwed up*" his prednisone. He took too many one day. The SIL had to call poison control and explain the situation, but the doctor said that there is nothing to worry about and that the pt would feel tired for some time.

3. How was what the pt actually had to do to care for himself when he got home different than what he expected?

SIL response: No difference

4. Is there anything you can think of that would have made leaving the hospital and going home easier?

SIL response: Checkout took too long. The doctor never came to see them. According to the SIL, the input and output of patients need to be better streamlined. *"There is too much waiting around for people to figure out what they want to do."* He also added that with today's technology, it shouldn't be so hard to get things done with the push of a button.

I-MPACT
INTEGRATED MICHIGAN PATIENT-CENTERED ALLIANCE IN CARE TRANSITIONS

Appendix F

Images of the visualization of the patient journey in a book form.
Displayed at the MDes graduate thesis 2017 exhibition

