Design Camp
The CERC High Value Health Care Incubator Syllabus
About CERC

Stanford’s Clinical Excellence Research Center (CERC) is the first US academic medical center dedicated to researching and teaching processes that promote high quality healthcare services while lowering the overall cost of care. Its publications have been frequently cited by national and international authorities and its trainees have played important roles in healthcare organizations. With the CERC High Value Health Care Incubator CERC aims to promote innovation in California safety net clinics and other non-profit organizations serving the MediCaid/MediCal population.

https://med.stanford.edu/cerc.html
What is in this booklet?

Introduction to the CERC High Value Health Care Incubator

Phase 1: Scope
Explore the data and the organization. Determine what to work on.

Phase 2: Prepare
Gather your team and plan the project.

Phase 3: Discover
Conduct research in order to understand the problem space.

Phase 4: Synthesize
Interpret learning and define opportunities.

Phase 5: Generate
Brainstorm and conceive new ideas.

Phase 6: Prototype
Select promising ideas to develop and test.

Phase 7: Pilot
Pilot your idea in successive stages. Prove its value by measuring impact.
Introduction

“Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.”
—Herbert Simon
Core Values

The CERC High Value Health Care (HVHC) Incubator combines four core values that make it unique from most programs or policies that encourage innovation in the safety net sector:

1. The HVHC Incubator solicits problems from clinics providing care to safety net patients and guides their staff through a problem-solving process. The CERC Incubator aims to find ‘bottom-up’ solutions that can be scaled from clinic-to-clinic.

2. The HVHC Incubator supplies hands-on coaching and support to the clinics and teams during the year-long process of problem discovery, synthesis, brainstorming, prototyping and pilot testing.

3. The HVHC Incubator uses several techniques that have emerged from industry and academia that have proven successful in innovation projects. These include driving change with small teams, human centered design methodologies and rapid cycle testing.

4. The HVHC Incubator uses the power of competition to select candidate proposals most likely to have positive impact and to scale across multiple sites.
High Value Health Care Incubator & Human-Centered Design

The Incubator’s concept is that small teams of people including those who work on the front lines and generally have the best understanding of their own work, and using a socialized problem-solving technique (Human Centered Design) in a structured process assisted by experienced support can effect meaningful change in primary care.

The Human-Centered Design process allows the team to better understand how health care functions from the patient perspective - what they want and need vs. how they currently experience the care they receive:

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<th>Feeling alone</th>
<th>Becoming an empowered patient</th>
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<td>Resource Intensive</td>
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CERC HVHCI Theory of Change Elements:

- Process Change Management
- Team Building
- Network Building
- Change Leader Development
HIGH VALUE HEALTH CARE INCUBATOR THEORY OF CHANGE

**Process Change Management**
- Guided hands-on experience in Human Centered Design.
- Data collection, analysis, iterative prototyping.
- Monthly cross-clinic problem solving.
- Coach and stakeholder feedback.

**Team Building**
- Diverse change teams of clinical and administrative staff.
- Funded admin time for team training and group project work.
- Access to ongoing team management tools.

**Network Building**
- Access CERC Incubator’s robust network.
- Partnership HealthPlan support.
- Access to leading experts via Grand Rounds.
- Network of peers and community partners.

**Change Leader Development**
- Expert coaching, including mentorship.
- Expanded roles for frontline staff on team.
- Team learns to work with stakeholders.
- Clinic leadership & stakeholders learn to support change teams.

**Direct Impact**
- Well designed and validated changes.
- Clinics positioned to use change teams to take on new challenges.
- Ability to scale projects across Partnership clinics.
- New clinic change leaders across roles.

**Ultimate Vision**
By 2025 the HVHC Incubator will be a sustainable organization that is a respected and sought-after source of assistance in solving problems for primary care practices and community organizations seeking to improve the health and wellness of disadvantaged Californians.
The HVHC Incubator is a year-long project involving three Northern California FQHC clinics that seek to solve an operational problem affecting their clinical practice and the communities they serve.

FQHC clinics participating in the HVHC Incubator must first identify and describe a problem in their practice having downstream negative effects on service, outcomes, and total cost of care. Clinics must also carefully select a small team of staff who can participate part-time in a “Design Camp” where they will be joined by design experts and CERC, NYU and Emory University faculty.
HVHCI Time Commitment

Estimated 4-8 hrs per week per team-member, depending on the project’s activities in a given week:

- **Design Camp (Sept – Dec 2022)**
  - 1.5 hour/week (Individual Clinic Teams + FMS + Coach)
  - 1 hour/week (Individual Clinic Teams + Coaches optional)
  - Team work as needed
  - Periodic training sessions (Impact Lab and other content experts on CalAIM, payment models, managing up, stakeholder analysis and presenting)

- **All Clinic Teams Meeting + Grand Rounds (Sept 2022 – Aug 2023)**
  - 1 hour/month (*All Teams Zoom meetings and Grand Rounds webinars alternating first Thursday of every other month*)

- **Individual interviews with Impact Lab team over course of year**

- **Implementation (Jan – Aug 2023)**
  - 1 hour/week (Individual Clinic Teams +/- coaches)
  - Implementation work

Project Presentations

1. **With Sponsors and Stakeholders**: At least one presentation/issue raising session with Sponsors/Stakeholders in 2022 and another in 2023

2. **HVHCI Design Camp "Cross Teams"**: informal midpoint sharing of insights and opportunity areas

3. **Formal presentations**: at the end of Design Camp and again at the end of the year
# Draft Timeline for 2022: Design Camp

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<th>Team Activities</th>
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<td>Design &amp; Coaching Meetings: Topics (1 – 2x per week)</td>
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<td>Intro, Design Overview</td>
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<td>Team Building</td>
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<td>Research Plans &amp; Discussion Guides</td>
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# Draft Timeline for 2023: Implementation & Evaluation

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<td>Launch micropilots Learn Iterate</td>
<td>• Impact Lab Midpoint Reflection</td>
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<td>FEB 2023</td>
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<td>• Design Camp Final Presentations Cross Team + Stakeholders</td>
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<td>MAR 2023</td>
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<td>APR 2023</td>
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<td>Stakeholder check-in, issue raising</td>
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<td>AUG 2023</td>
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<td>• Final Presentations Cross Team + Stakeholders</td>
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<td>SEPT – DEC 2023</td>
<td>Pilot Measurement</td>
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What Does Success Look Like?

The Incubator enables participating teams to make consequential positive and sustainable change on a problem that patients, providers and stakeholders share an interest in solving. While the nature of those interests may differ, they can be aligned and enhance one another. For example, patients seek care that meets their wants and needs in a supportive, timely and efficient manner; clinical staff may identify goals of patient outcomes or staff satisfaction as meaningful while payers look to quantifiable reductions in overall healthcare spend.

The Incubator leadership welcomes those outcomes but adds outcomes satisfying the goals of funders and research partners. The key point is that system innovations have multiple effects and that these varied interests play roles in the selection of participants, problems, and the design of the prototype solution.

Success Is:

**Desirable**
- Does it meet a human need?

**Feasible**
- Is it technically possible?

**Viable**
- Does it recognize the constraints of its environment?
Measuring Success: Stakeholder Perspectives

Success must be meaningful to all stakeholders

› Patients: “Care when and where I want and need it.”

› FQHC leadership and staff: Increases clinic efficiency, and joy in work.

› Health Plan: Lowers total per-capita cost of care by decreasing ED visits and hospital admissions.
High Value Health Care Incubator Teams Competencies

**Process Change Management**
- Articulated clear design challenge (problem or opportunity statement)
- Demonstrated skills around incorporating patient-perspective and interviewing
- Completed just-right data collection and analysis
- Piloted a well-designed prototype
- Demonstrated ability to adapt prototype using data
- Create a meaningful change in their clinic (e.g., change broken process, introduce new process)
- Demonstrated achievement of the Triple Aim (improve patient experience, promote population health, and lower cost)

**Team Building**
- Learned whom to include in different types of change work (e.g., core group, content experts, stakeholders)
- Learned how to work across different workstyles
- Learned to use different perspectives and skill sets from diverse team members
- Developed conflict resolution skills

**Network Building**
- Developed relationships with other peer clinics in the incubator
- Developed relationships relevant community stakeholders
- Gained information from external content experts
- Worked with Partnership in ways that increased cost-savings and efficiencies

**Change Leader Development**
- Expanded roles of front-line staff (e.g., greater or new responsibilities)
- Provided leadership opportunities for front-line staff
- Provided intra-team mentorship
- Provided intra-team capacity-building opportunities
- Learned to identify in-clinic stakeholders and effectively activated them
- Ongoing presentation training

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By the end of its third year, the HVHC Incubator will have:
1) demonstrated that its program can bring about changes in health care delivery that improve patient experience, promote the health of populations, and reduce the overall cost of healthcare, and
2) accelerated leadership development and problem-solving skills among clinic personnel that they can use to create change beyond the incubator project.

**Implemented one or more change that**
- Improved patient experience
- Promoted health of population
- Lowered cost of healthcare

**Clinics positioned to use change teams to take on new challenges**

**Ability to scale projects across Partnership clinics**

**Team members are change leaders in their team and clinic**

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*Stanford University*
*Clinical Excellence Research Center*
Features of Incubator Design Teams

1. Solving problems in the local setting by those who know the local setting the best

2. Small, diverse teams with the time and space and independence to try out new approaches

3. “Rapid Cycle Iterations” – vs. top-down planning in a vacuum

4. Coaching – Future Medical Systems, Impact Lab and Stanford CERC faculty

5. Scaling from the few to the many – built in from the beginning

6. Financial support to teams to create the space and time for creative problem solving and scaling
Why Design Camp?

Innovation has been viewed historically as an innate, qualitative skill possessed by only a few. In recent decades, however, problem-solving and innovation have been extensively studied by several disciplines including psychology, sociology, economics and engineering. From these studies there has emerged both theory and evidence to form a ‘science of innovation’ that describes explicit mental frameworks and methods that can improve problem solving in numerous settings.

The ‘science’ of problem-solving and innovation has moved forward rapidly, acquiring, the general moniker of ‘design thinking.’ Formal institutions such as Stanford’s Hasso Plattner Institute of Design, known as the ‘D School’ have greatly contributed to the field, partnering with the local tech industry and the innovative Silicon Valley design firm IDEO and others.

A distinct branch of design thinking that is especially useful for complex problems is human centered design. This approach emphasizes user experiences, identifying needs and individual ‘work-arounds’ as central factors in a multi-stage pathway of defining, ideating, prototyping and testing potential solutions. Design thinking and practices are now widely used in a variety of settings including within health care, where the phrase ‘patient-centered’ has lately become a cliché. In efforts to make care more effective, health care organizations often struggle to engage with the people most responsible for health outcomes - the care team and the patients themselves, leading healthcare organizations including the Mayo Clinic, Kaiser Permanente, Sutter Health, Robert Wood Johnson Foundation and Stanford School of Medicine have applied elements of human centered design to improve processes and outcomes.
“We can’t solve problems by using the same kind of thinking we used when we created them.”

—Albert Einstein
The designer’s mindset

Although we describe a specific set of tools, Design Thinking is as much a mindset as a methodology. As an approach to innovation, it is characterized by principles as well as processes, values as well as data, inspiration as well as analysis. For designers, these mindsets are the foundations upon which effective initiatives are built. Design Thinkers tend to be optimistic, empathic, inclusive, experimental, curious, and action-oriented:

**Optimistic**

The designer’s mindset is fundamentally optimistic and focused on what could be; without the confidence that we can achieve positive results, what is the incentive to dive in and take action? A room full of design thinkers will resonate with “What if...?” and “How might we...?” rather than “That will never work,” or, “We tried that last year.”

**Empathic**

Rather than frame their approach in terms of technological capabilities or institutional realities, we approach problems from the perspective of the people who experience them. We listen to what they say (and don’t say), observe what they do (and don’t do), and elevate their “local” expertise.

**Inclusive**

To unlock the power of collaboration, the best ideas must be permitted to rise to the surface, irrespective of their source. We identify opportunities collectively, we conceive and refine them in concert, we prototype solutions and test them with people in real-world situations, and everyone shares credit and assumes responsibility. Design Thinkers are more likely to speak in terms of “we” and “us” than of “I” and “me.”
Experimental

We emphasize the freedom to explore many ideas with the expectation that the eventual solution will be the richer and more sustainable. The experimental mindset is comfortable with ambiguity and trusts in the process to open up ideas to life in a repeating learning cycle.

Curious

The most powerful insights often come from the most unexpected sources, so we draw our inspirations from wherever we can find them—and not just from the field of healthcare! Creative people need to explore many paths and peer around many corners. In the words of legendary humanitarian Linus Pauling, “If you want to have good ideas, you must have many ideas.”

Action-oriented

Designers are always experimenting with ways to give form to ideas: “Show, don’t tell” is their common refrain. More than white papers and reports, designers will communicate ideas by drawing pictures, constructing storyboards, building models, and finding imaginative ways of simulating experiences. Systems live in the real world, and the best way to test whether a solution might work is to make it visible and tangible.
Human-Centered Design for Healthcare

An Overview

Phase 1: Scope
Explore the data and the organization. Determine what to work on.

Phase 2: Prepare
Gather your team and plan the project.

Phase 3: Discover
Conduct research in order to understand the problem space.

Phase 4: Synthesize
Interpret learning and define opportunities.

Phase 5: Generate
Brainstorm and conceive new ideas.

Phase 6: Prototype
Select promising ideas to develop and test.

Phase 7: Pilot
Pilot your idea in successive stages. Prove its value by measuring impact.
I. Scope

“The question is not, ‘What is the answer?’
The question is, ‘What is the question?’”
—Henri Poincaré
In Design Camp, we try to answer the following questions before committing ourselves to a project:

**Is the problem a priority?**

**Will it garner frontline engagement?**

**Do you have strong partners?**

**Is it ripe for design?**

Some projects are more amenable to design solutions than others. Does yours involve a system of people, where motivations, feelings, and behaviors are relevant? Do people’s behaviors not make sense or deviate too far from training or standard operating procedures? Are there multiple stakeholders? Is this a problem where new ideas are desired? Are there multiple possible “right” answers? These are the spaces where Design Thinking thrives.

In healthcare environments, almost everything is regulated. Be sure to understand whether your project needs to be subject to rigorous scientific protocols.

**Is it approachable?**

Does somebody else have responsibility for solving the problem you are interested in? Is it already being studied? If others are already interested or working on the problem, they might be enthusiastic partners and sources of talent, resources, and energy. On the other hand, you may be viewed as competing or duplicating efforts already underway.

If the problem areas you are looking at seem to be supported by the data and are amenable to design, you are ready to put together a project proposal. However, it may be advantageous to explore the value-creation potential of your project in order to garner sufficient attention and investment to begin.
All parties must be fully aligned on the scope of the project and what the expected outputs will be. This will be critical in releasing the appropriate resources to your team and garnering the sufficient buy-in across the organization.

Whether the proposal takes the form of a one-page report, a chart, or a PowerPoint deck, confining the summary to one page helps to focus your thinking and provides a useful executive summary for sharing with senior stakeholders.

### Project Summary Worksheet

- **Project Name**
  - Create a unique name for your project that captures interest. Your project name should inspire people.

- **Project Sponsor/s**
  - Who is/are the senior leader/s with ultimate oversight for the project?

- **Project Lead/s**
  - List the key contacts for the project.

- **Objective**
  - Generate a concise statement of what the project is intended to achieve. At this stage, this can be narrow, bold, or aspirational.
# Project Summary Worksheet

## Background
Include important background or context for the project. Why is this important at your organization? How important is this nationally and beyond? What’s been done?

## Problem Overview
What is the problem (expressed in data, financials, or otherwise)?
Where is it occurring? Who are the key stakeholders and end users?
What are our current hypotheses as to why the problem exists?
What are the unknowns about the problem?
What are the costs or risks of doing nothing?

## Milestones & Deliverables
Description of the desired impact and timing of the key milestones and outputs of your project. Use the Design Camp phases as a guide. What constitutes success? What is the reporting mechanism? For example:
## Project Summary Worksheet

### Approach

Short summary of the proposed approach and activities to solve the problem.

### Constraints

Items that are out of scope or other guardrails of the project.

### Team

Who is responsible for the work? Who are you partnering with?

### Budget & Resources

Time, material, finance, and human resource requests.

You have now scoped the project. It's time to build your team, create a plan, and assemble the resources that will enable you to tackle it.
“Come, Watson, come! The game is afoot. Not a word. Into your clothes and come!”

—Sherlock Holmes
Starting a new project is like moving a boulder. It takes an enormous amount of effort at the start, but once it gets rolling, momentum takes over and the process itself gives you energy and direction. In Phase 2 of the Design Camp process—Prepare—you will begin gathering the elements you’ll need to get started: a team, a plan, a space, and materials. By the end, you will be ready to begin your exploration of the problem space, seeking to identify opportunities for design.

**Process steps**

**Build your team**
Build project and advisor teams to support rapid decision making.

**Create a project plan**
Determine where you should be, who will do what, and what you will need.
**Build your team structure**

Any design effort should seek to make everyone’s life better and no one’s worse. This is especially important in healthcare, where a single change can affect a broad spectrum of people ranging from physicians, pharmacists, nurses, medical assistants, and health coaches to patients, their families, and community. Inevitably, organizational politics will affect whether an idea is accepted and implemented, but you can mitigate their effect by building a community of support and maintaining it through the life of the project.

The first step in preparing to launch your project, then, is to identify the key stakeholders and begin building a network. This will include a core team that will be tasked with moving the project forward and is responsible for producing results; sponsors who provide high-level support, oversight, and accountability; partners who will take responsibility for various aspects of the work; adopters who are the first to try, develop, and test new solutions; and finally, scalers, whose role is to spread the idea throughout the organization. In some organizations, these groups will be completely disparate; in others, they will overlap.
The Core Team

Design is a team sport. As you go about the important work of building your core team, we suggest some factors that will influence its success:

**High trust**

The most important indicators of team performance are less about who is on the team and more about how the team works together. High-trusting teams are high performing teams and the ability to build trust is dependent on the values and personalities of team members, and the culture you are able to create together. The strongest teams:

- **offer vulnerability**: people are willing to take risks and be vulnerable in front of other team members; people who are comfortable with bringing their “whole selves” to their work.

- **demonstrate empathy**: people care about their colleagues as people, pay attention to the unspoken needs and mental states of others, and are able to respond effectively and empathically.

- **are flexible**: people are comfortable with ambiguity and operate effectively when the path forward becomes unclear.

- **stoke optimism**: people bring optimism and energy to the team, and add value and encouragement by their example.

- **model dependability**: people deliver on their commitments on time and with excellence.

- **are mission-driven**: people see their work as a purposeful and connected with meaning; they really care about making a difference.

- **are supportive**: people support each other through confidentiality, dialogue, mediation, and encouragement when the going gets tough; they would never “throw someone under the bus.”

- **build friendship**: people are inclusive in interpersonal settings and look for opportunities to get to know each other; you might see them take each other to coffee, lunch, happy hour, or outings.

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**Story:**

In 2012, a team from Google launched a project code-named “Aristotle” to identify the elements that made some teams succeed and others flounder. They surveyed 180 of their teams across the globe, and discovered that the number one determinant of performance was “psychological safety,” defined by the study lead as “a blend of trust, respect for each other’s competence, and caring about each other as people.” Teams with high psychological safety exceeded their targets by, on average, 17%. In contrast, those with low psychological safety missed their targets by, on average, 19%. In these teams, members feel safe to take risks and be vulnerable without feeling insecure or embarrassed.
Build your team Worksheet

The goal of this exercise is to build an inclusive project team, identify sponsors and partners, recruit key decision makers and gatekeepers, and mobilize the groups that will eventually adopt your solution and those that will scale it.

1. Using sticky notes, brainstorm all of the people who relate to the problem space of your project. You can be as general as a whole group (“residents”) or as specific as a particular person (“Nurse Jones”).

2. Cluster the stakeholders into the following groups:
   - Core Change team
   - Core Implementation Team
   - Sponsors
   - Stakeholders, Partners, Adopters
   - Scalers

3. For each key group, come up with a statement that expresses their key concern, motivation, or expectations.

4. Assign priorities to each stakeholder group or person based on the importance of their engagement in the project and the value that they might bring. Remove those who are of less importance to the project.

5. Finally, list the names of key individuals in each group and assign a role for each of them. For example, a chief medical officer may be a key project sponsor. That person’s role in the project might be to provide advice at key decision points or simple administrative cover. Then set a goal in regard to that advisor—for instance, to meet with them once a month throughout the life of the project.
### Stakeholder Guide

#### Core Change Team

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<th>ROLES AND GOALS</th>
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#### Core Implementation Team

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#### Stakeholders, Partners, Adopters

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Discover

“Empathy is about standing in someone else’s shoes, feeling with his or her heart, seeing with his or her eyes. Not only is empathy hard to outsource and automate, but it makes the world a better place.”

—Daniel H. Pink
Having identified an area of opportunity and being selected for funding at pitch night, you are ready to prepare for Design Camp and enter the Discover phase. If the previous stages gave you the “what” and the “where,” Discovery uncovers the “how” and the “why.” This is where an innovation team learns to question its assumptions, widen its perspective, and deepen its insight.

Our goal in Discover is to uncover nuances that may lie concealed in the depths of the problem space and to attain a deeper understanding of the people within it. Assuming a beginner’s mindset, your team will build empathy with people affected by the problem you plan to address, probe the social and system context, collect inspiration, and learn from experts in your own and adjacent fields. You will explore the connections among hard data, competing mental models, and stories that illustrate human behaviors and motives.

**Process steps**

**Plan your exploration**
Identify sources of inspiration and prepare to meet people in real-life contexts.

**Gather inspiration**
Learn from users, experts, and secondary research.

**Share stories and learning**
Capture and share your learning with your team.

**Host a fieldwork snapshot meeting**
Review learning and collect feedback.
Plan your exploration

Identify sources of inspiration and prepare to meet people in real-life contexts.

In some contexts it can be of benefit to approach a new design challenge with a blank slate. The healthcare environment, however, involves highly specialized units, divergent cultures, vulnerable populations, extensive regulations, and a multiplicity of fluid interactions among people, systems, and technology. There are always opportunities for improvement and innovation, but these must be situated within a framework that is built upon evidence and assures efficacy and safety. It is essential that you enter this environment with a deep understanding of the history, context, and science behind your challenge.
Secondary research

What does the literature say about the common causes and contributing factors to the problem you are working on, and what lessons can be drawn from it? What solutions have others employed? You should read the research—not just review articles—and evaluate the methods used and the subjects studied. Review the literature with the same critical eye you applied to your data in Scope. In addition to the medical literature, be aware that there is much to be learned from such adjacent fields as behavioral economics, human factors and ergonomics, and psychology. Do they discuss situations similar to those you are observing? Are there research-based models you can use to frame your exploration? Have they identified solutions that inspire you?

In-context interviews, observations, and immersion

In Design Camp, we supplement quantitative data and published research with direct experience. The goal of qualitative, human-centered design research is to gain insight into the people involved with patient care generally and with your design challenge in particular. The best way to do this is to conduct in-context interviews, observe people in their native environments, and create experiences that allow you to immerse yourself in the problem space.

Remember that you are not testing a hypothesis or proving a theory. Instead, lay aside your assumptions and agendas, and explore possibilities you might not have thought about before. We use the word “empathy” to describe the goal of understanding others’ experience informationally, but also emotionally. It’s not the same as agreeing with their points of view, but being able to identify with how they came to hold them and why they behave in a certain way. The people you speak with should feel your genuine interest in what matters to them.

Design research is illustrative, not definitive; it captures stories, not numbers. We seek inspiration, not validation. We’re looking for “moments that matter” in the daily lives of people in patient care settings, and we pay close attention to the relationships between people and people, people and resources, and people and systems. Always remember that the qualitative insights you gather through interviews and observations, because of their
nature (anecdotal) and sample size (small) won’t prove anything. Nor are they intended to: The purpose of qualitative design research is to reveal underlying meaning and focus our attention on opportunities.

**Expert perspectives**

Schedule one-on-one sessions to learn from internal or external subject matter experts. You will get the most out of their time by conducting background reading and preparing thoughtful questions in advance. Extend your topics of discussion beyond content expertise: How do ideas move through the organization? What are the successes and failures they’ve seen? What else should you be thinking about? Can they connect you to others from whom you might learn? Identify the experts, contact them, and see if they will share their thoughts with you.

**Analogous experiences**

Seeking inspiration from contexts outside your own can lead to fresh insights and new perspectives. Think of situations that might illuminate your challenge from an analogous perspective: What can you learn about an emergency room by observing a restaurant kitchen or a kindergarten playground? The “customer experience” is central to healthcare; how does Disney do it? Or Airbnb? Or Trader Joe’s?

**Data dive**

What other data might be useful for understanding the system for which you are designing? Nursing staff ratios, patient volume, revenue, tests ordered, patient satisfaction surveys, and staff engagement scores might all be useful for understanding the system and the people. Reach out to other departments to see what other measures might be useful. Quantitative data and qualitative research have a push-pull dynamic: data can reveal gaps where research can be helpful, while research can give deeper meaning to data needed for innovation and design.

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**Story**

While investigating the experience of diapering an infant, we wanted to see how other people optimized changing clothes for speed and convenience. For example, the team visited the backstage of a theater to see how people got quickly in and out of their costumes; we then observed how rock climbers got quickly in and out of their gear.
Selecting candidates

Healthcare is complex, and to come up with solutions that work it is necessary to understand the work environments of the people for whom you are designing. Map the inputs and outputs of the system from the perspective of flows and take account of roles and functions within it: patients, staff, nurses, physicians, and others who may be less visible.

Most team members will have a mental model of the systems in which they are working, but these may contain unproven assumptions. Having your team draw their mental models and share them with you early in the project will highlight areas that need more exploration. Use your supply of sticky notes to represent individuals, and roles, and the flow of information, processes, products, and tasks.

This example shows a map of medication flows through a healthcare organization. It took about 30 minutes to create and facilitated a conversation around project scope and candidate selection.
Your candidates are representatives of unique behavioral segments and groups that have a special story to tell. To begin, try mapping all of the key stakeholders involved in the problem space you are investigating.

For example, the diagram below suggests a field of possible interview candidates for a team hoping to improve the admissions process from a patient point of view:

Some of these stakeholders might be directly involved in providing care: physicians and nurses, for example. Others—the pharmacist, the food service worker, the hospital cleaning staff—might be less visible but also have important roles to play. And remember, the person most intimately connected with the patient is...the patient! Always try to include patients and family networks in your research. Their perspective is essential for a complete picture and often contains unique observations and insights no one among the project or healthcare teams will have thought of before.

**Ideal candidates**

Wherever possible, arrange a short phone conversation with patients, clinicians, administrators, or experts you are thinking of meeting with. You can usually get a good read of their style. The ideal candidate might have some of the following qualities:
Inspiration from the margins

Interviewing people in the mainstream has value, but findings will likely be incremental due to similarities in their experiences, workflows, and personalities. We therefore seek inspiration also from those at the margins where we are more likely to discover new information and make new connections. These are people on the edges of the spectrum whose needs may be amplified and whose attitudes, behaviors, emotions, and work-arounds may be revealing precisely because they are atypical. And your solutions must work for them as well.

Examples of various interesting or atypical stakeholders include:

- the most experienced and least experienced
- the very young and the very old
- those who break the rules or create work-arounds
- high energy or low energy
- unique use of technology, such as apps or devices
- extreme attitudes toward technology, processes, or tools
- highly motivated patients who care well for themselves vs. patients who need strong guidance

Look for inspiration from users at the margins

• has a unique point of view or experience that is directly relevant
• is naturally talkative and opinionated
• is interested in your agenda, not their own
• is aware of the area related to your challenge
• has witnessed a shift in practice

• has developed own practices/protocols
• is particularly frustrated with the current practices
• has witnessed a reluctance to change
• loves to try out new ideas!

Story

When designing new experiences for lab workers, we looked for people with an extreme fear of needles. This prompted us to ask what changes in environment, tools, roles, and processes might make them more comfortable. The results not only addressed needle safety, but pointed the way to approaches that generally reduced anxiety and stress for all lab workers.
4. Synthesize

“Observation reveals what is happening, but it takes interpretation and speculation to understand why.”

—Jane Fulton-Suri
Having laid the groundwork for your project, you are ready to weave together the strands of your research and translate them into insights that inspire action. We refer to this process as synthesis. It draws from a rich tradition of social science and design methodologies in order to identify themes from your research, discover hidden meaning, and define new directions for design. Relying in equal measure upon intuition and analysis, the act of synthesis helps us to make sense out of the underlying motivations that animate people’s behavior.

The goal of this phase of the Design Camp process is a sharp definition of insights and opportunities that will help you decide what is important, why it is important, and to identify the real problem. You will then be ready to generate a wealth of ideas about how to solve it.

Process steps

**The synthesis kickoff**
Gather your assets and prepare to engage.

**Look for themes**
Cluster observations into groups that make sense.

**Create frameworks**
Build a conceptual model.

**Generate insights**
Turn themes into insightful statements.

**Define opportunities for design**
Create design challenges in the form of “How might we...?” statements.

**Synthesis review**
Test your assumptions.
5. Generate

“We want to give ourselves the permission to explore lots of different possibilities so that the right answer can reveal itself.”

—Patrice Martin
Once you have explored the territory, synthesized your learning, and fashioned insights into a design challenge, it’s time for idea generation. Brainstorming encourages expansive and creative thinking and opens up new avenues to apply evidence-based solutions. From a large set of potential directions, you will engage your intended audience with the most promising concepts. Once you have done so you will be ready to test them with rough and scrappy prototypes.

Process steps

Brainstorm ideas
Generate a large number of potential solutions and select the most promising

Create a concept
Create a concept from the best ideas; show how it might work in the real world.

Design principles
Identify design principles that emerge from your insights and ideas.

Research ideas
Collect inspiration that might inform your concepts.

Refine ideas
Review your concepts and decide whether to carry it forward.
6. Prototype

“Do not seek praise. Seek criticism.”
—Paul Arden
Designers have learned the importance of prototyping as a way to work out the kinks before seeking regulatory approval, manufacturing support, or taking other major steps. Sometimes a strip of duct tape and a bar of soap are enough to give form to an idea to clarify its underlying design principles. It’s fast, and cheap, and as a learning tool it can provide maximum return on minimum investment. Once you have tested your idea through a series of rough prototypes, gathered feedback, and made the necessary adjustments and refinements, you will be ready to pilot it in a real-world setting.

**Process steps**

**Build your prototype**
Learn how to prototype a product, a service, an interface, or an environment.

**Capture and integrate feedback**
The point of a prototype is to elicit feedback.

**Refine**
Iterate and refine until you are satisfied that you’re ready to carry your idea forward.

**Share the concept for launch**
Bring your idea to life.
Build your prototype

Learn how to prototype a product, a service, an interface, or an environment.

What is a prototype? A prototype is anything that allows you to express an idea. The goal is not to make a beautiful model, but to gather feedback to see if the idea has value. Prototyping is a critical tool in the Design Camp process as it lets us test our assumptions through a series of safe, fast, and inexpensive experiments. Unlike scientific experiments that aim for strict, repeatable results, prototypes are more akin to prompts for conversation; they are allowed to change, and we expect them to.
Prototypes start simple and are iterative: They build on what you have learned and become increasingly sophisticated as they address increasingly complex problems. For that reason, it is important to be clear about the question you are trying to answer. A single question could be answered by various prototypes, and iterations can lead to more questions. You’ll need to proceed quickly but cautiously. Precisely because it is rough and unfinished, a prototype is vulnerable and can be dismissed too easily. Make sure you have captured what’s right about it and not just what’s wrong.

Your team should be prepared to create as many prototypes as possible, in each case finding the cheapest and fastest way to test the assumptions underlying an idea. Don’t expect to test everything at once; each element will likely go through several rounds of prototyping in varying degrees of resolution as you move from drawings to PowerPoints, process maps, and even physical artifacts. This may sound like a lot of work, but it is an excellent risk mitigation strategy and will save time in the long run. It’s also loads of fun!

In the risk-averse world of healthcare, failure implies error, harm, and injury. Design Thinking takes the opposite approach: failure implies learning. We believe that in a complex innovation effort there are always many more ways to fail than to succeed and that the best strategy, in the words of IDEO’s David Kelley, is to “fail early to succeed sooner.”

“If you’re not prepared to be wrong, you’ll never come up with anything original.”

—Sir Ken Robinson
The evolution of a concept

We worked with patients, families, and nurses at a children’s hospital to imagine, “how might we enable patients and families to partner with nurses in medication safety?”

The process began with nurses and patients brainstorming ideas together:

Nurses and patients then built prototypes to explore different directions:

Early prototypes should be intentionally low resolution. At this stage, prototypes represent a concept direction; only gradually will they come to life as a specific idea.
This is the moment when a good idea gets transformed into an emotional experience!

In the lo-fi pilot, nurses tested and iterated the ideas on the unit:

In the later pilots, the team made small refinements, evaluated impact, and received approval to implement the solution organization-wide.

Building flexibility and ambiguity into the style of building the prototype helps an idea grow, and allows for the creativity and vision of real users. If it looks too good or too perfect, people will have a harder time giving honest input. Prototypes should be made to be marked up, taken apart, and broken.
**Why prototype?**

There is a common misconception that a prototype is the first version of the idea that you intend to implement. This type of thinking is risky and wasteful. The more finished the drawing or model, the more difficult it is to let go of it, even in the face of negative feedback. It can lead to an “escalation of commitment” to an untested solution.

Designers prefer to think of prototyping as a series of small, low-cost experiments from which to learn quickly. The point is to test a broad range of ideas as early as possible to dispose of most of them. A new electronic health record interface can be prototyped by affixing sticky notes to the screen of a phone. A new discharge procedure can be prototyped by drawing a rudimentary storyboard or performing a simple skit.

Prototyping can be a fun and immersive experience, so involve as many of your team members as possible. It is an excellent way to build ownership, especially as new team members enter the process. Take them through your early Observation and Insights phases and let them absorb stories and develop a connection to the big picture. Make sure that everyone has frequent opportunities to share their input and ideas and that they do not feel that key decisions have been made prior to their input. Above all, remember that during the Prototype phase we are not just prototyping solutions. We are prototyping ideas to test our assumptions about a solution.

In this chapter, we will explain how to move from an idea to something that can be tested in a clinical setting. We will also learn how to prioritize questions that can be answered by prototyping and how to gather feedback. Remember that a prototype needs only to be “good enough.” At this stage of the Design Camp process, the key is to move quickly to learn as much as possible.

Choose a prototype form with the right level of investment. It should represent the experience you are bringing to life and ask the questions you hope to answer, with minimum time or resources. Think paper and pipe cleaners, stick figures, and sticky notes for your first round of prototypes.
Emphasize the strategy to address the need, not the “thing”

Nearly all solutions will include some kind of “thing”—a checklist, a widget, or a communication protocol. There is a high likelihood that people unfamiliar with your process will confuse this tangible “thing” with your solution. Be careful to emphasize the kind of experience you have created, the behaviors your solution has changed, and the system you have created; what you have created is a strategy to address a need, not a thing. Don’t let your audience be distracted by details of your current implementation. “I don’t like the typeface” is the last thing you want to hear.

Capture the design intent

Tell the audience what is really important about your idea from the point of view of experience. Review your design principles from Step 5-3. Use headlines—for example, “Peer-to-peer sharing,” “Natural language communication of medicines,” or “face-to-face connection among user groups”—that capture the design at the highest level. While the details of an idea might change, these strategic principles are where the design intent resides and are what people should refer to in future.

Tell stories

Concentrate on communicating the experience that your concepts will create. Show a situation that represents something that you saw during observations, and show the impact your solution will have. Support it with data, direct quotations, and photos of the solution in use.

Be visual

People have attended thousands of presentations, and their first reaction to a slide deck may be to pull out their smartphones and check their email. Try to distinguish your meeting from others by the way you engage the audience and the language you use. You have engaged in a creative process for this project; use that expectation to your advantage. Make sure your process is represented in the space and not just in the deck, for example, by hanging up posters with images from your observations. Create working spaces with whiteboards and posters with written questions that
engage the audience. Markers and pads of sticky notes on each seat invite everyone to participate.

**Be tangible**

Include artifacts. If you can make the ideas feel real by producing visualizations with little effort, do so; this can help people imagine the reality of the idea and elicit helpful feedback. Examples include brochures, posters, and hand-drawn software screens. Moderate your effort accordingly. The danger of over-developing an idea is that you can become committed to it before your stakeholder team has had a chance to suggest ways of improving it.

**Provide a takeaway**

You want people to think about these ideas after the meeting, so leave them with a printed notebook or a set of cards with key quotes from research—something impactful that they would want to share with colleagues.

**Solicit feedback**

While your presentation marks the end point of the design process, it’s actually the kickoff to its wider implementation. Even in this final meeting, it is important to be open-minded. It’s appropriate to be strong and confident about your insights and opportunities, but let your audience know their precise form and tangible expression is still up for development.

**Looking Forward**

Paint a picture of what continued development of the solution might look like. Give people something to say “yes” to, rather than expecting them to figure out what should come next. This will prevent your ideas from descending into “business as usual” and getting stuck in committee. It also helps in sending the message that this is not the end of a process but the beginning of its realization.
Virtual Pharmacist

Improve the value and effectiveness of communication between pharmacy and nursing.

- Reduce distractions and burden on pharmacy
- Improve information flows between pharmacy and nursing
- Support nurses in medication administration

**ENHANCE COMMUNICATION**

- A live person to contact when a nurse has a question/concern related to medications.

**TRIAGE QUESTIONS**

- Question types can be triaged by nurse for the most rapid answer.
- Simple pharmacy and logistics questions are answered immediately while scheduled times available for specialists.

**LEVERAGE EXPERTISE**

- The expert can answer questions about medication interactions, dosage, allergies, etc.
- The pharmacist can immediately process drug changes and route for MD approval if needed.

**ON THE SAME PAGE**

- Pharmacist can share screen, including the iVent screen that may contain valuable information about change in prescription.
- A progress bar shows where in the system an ordered med is with an ETA.

**BUILDING BRIDGES**

- System builds trust and enhances communication between nursing staff and pharmacy teams.
- Improving information flow enhances patient care and improves medication safety.

**PILOT OVERVIEW**

- Uncover the types of questions nurses ask pharmacists and time taken to respond.
- Create time and budget for a pharmacist to participate in the prototype.
- Socialize with pharmacists to identify volunteers to take part in pilot.
- Set up Skype station in a medication room. Define office hours.
- To measure behavior change, define a single month prototype period with periodic reviews.
- Co-host with Innovation Lab staff.
- Log the types of questions that the pharmacists receive and see how the questions evolve over time.
- Measure impact on pharmacy/nurse relationships.
- Understand common causes for late meds.
7. Pilot

“A design isn’t finished until somebody is using it.”

—Brenda Laurel
Seeing a fresh new idea evolve into a product, plan, or policy that creates lasting impact is the high-water mark of Design Thinking, the reason why we do what we do. Here, the rubber meets the road! In this phase, you will learn how to introduce a new idea into the live environment and how to tell if it’s working. Once you have successfully piloted it in real-world settings, you will be ready to spread it across your organization, and even beyond.

**Process steps**

**Develop a pilot strategy**
Many prototypes lead to several pilots.

**Develop a measurement strategy**
Demonstrate the impact.

**Launch pilots**
Let’s get tactical.

**Evaluate your idea**
Is it desirable? Feasible? Viable? Achievable?
Develop a pilot strategy

Many prototypes lead to several pilots.

A prototype, as we have seen, is a way of visualizing how a solution might behave in the real world; it is purposefully fast, cheap, rough, and iterative. A pilot, by contrast, is a sustained, fully executed engagement, the purpose of which is to find out how and whether a concept will work with existing staff, space, and resources. You carve out a safe space with friendly allies and grow and scale it from there.

Congratulations! ... and now you are ready to implement!
When do we stop prototyping and start piloting?

Before every pilot, there are many prototypes and many rounds of iteration. To move from prototype to pilot, you will need to meet three conditions:

1. You have established a sufficient level of performance and safety to permit real-life usage.

2. You have secured sufficient resources (money, time, people) to develop a robust, sustainable version of your idea.

3. You have built an appropriately broad community of support, including leadership, that understands and supports your efforts.

The purpose of a pilot is to determine what is required to move an idea from concept to full implementation. It’s best accomplished in successive phases, starting small and expanding over time. The key question at this point of the process is always, “How might we validate this concept?”

In the Design Camp process, we have found it useful to break the pilot phase into three distinct stages—lo-fi, alpha, and beta.

“When I’m working on a problem, I never think about beauty. I think only how to solve the problem. But when I have finished, if the solution is not beautiful, I know it is wrong.”

—R. Buckminster Fuller
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