Applying Human-Centered Design to Address Common Infection Prevention and Control Challenges

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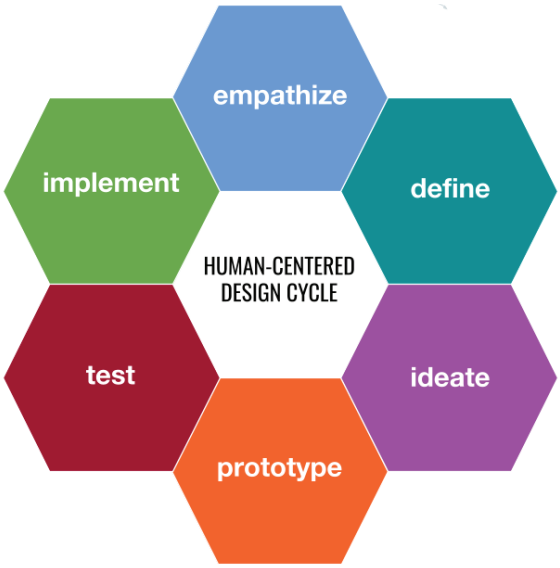
Background

Infection prevention and control (IPC) successful practices have been around for decades, but in the midst of shifting environments, hospitals and health systems can experience challenges with doing them well or consistently. We also know that infection prevention involves an entire team and can have complex and complicated processes. Because teams are made of people, and people are themselves complicated, we looked to human-centered design (HCD) to identify ways to improve upon current practice. In partnership with the consultancy group Upstream Thinking, and a small number of hospitals, the American Hospital Association (AHA) examined these infection-prevention challenges — with the goal of generating solutions.

Introduction

When existing processes no longer work, persistent challenges require a different approach. Many of these problems are reflections of systems that were not designed for the needs of the people meant to use them. Health care systems are human systems first, so innovation in health care often depends on changing human behavior.

Both method and mindset, the strength of HCD lies with first understanding the needs of the people affected by a given problem, and then cocreating solutions alongside them to ensure those needs are met.



The Challenge

Health care is a service-based field that relies on individuals working in teams. Therefore, IPC is ultimately dependent on decision-making and behavioral habits of individuals working in a given context.

A workflow or process may be developed without taking into account all team members nor involving them in its design, which can lead to unintended challenges. The best method for improving IPC is to understand "the why" behind people's behaviors and work alongside them to jointly build solutions that would work for them, make it easy to do the right thing and provide better patient care.

DEFINITION

Human-centered design

Human-centered design is a creative problem-solving process that focuses on people's unmet needs to generate innovative solutions.

– Upstream Thinking

IPC challenges and ownership cut across departments, care settings and job roles. Because individual behavior is highly influenced by group dynamics, understanding the team behind a given workflow or process is a compelling backdrop for understanding innovation opportunities in IPC and informing new ways to approach the problem. For the purposes of this project, we defined "team" to mean a group of individual frontline health care workers working interdependently toward a common goal (infection prevention).

Our Approach

AHA partnered with four hospitals and Upstream Thinking to build a contextual understanding about infection-prevention challenges from the perspectives of frontline workers. The hospital partners represented a mixture of settings and sizes — a small critical access hospital, a safety-net public hospital in an urban setting, a large health system encompassing 11 regional locations and affiliated to two academic medical centers, and a small health system encompassing six regional locations plus 300 primary and specialty care locations also affiliated with an academic medical center. We sought to identify patterns and opportunities that would be broadly applicable to hospitals across the country.

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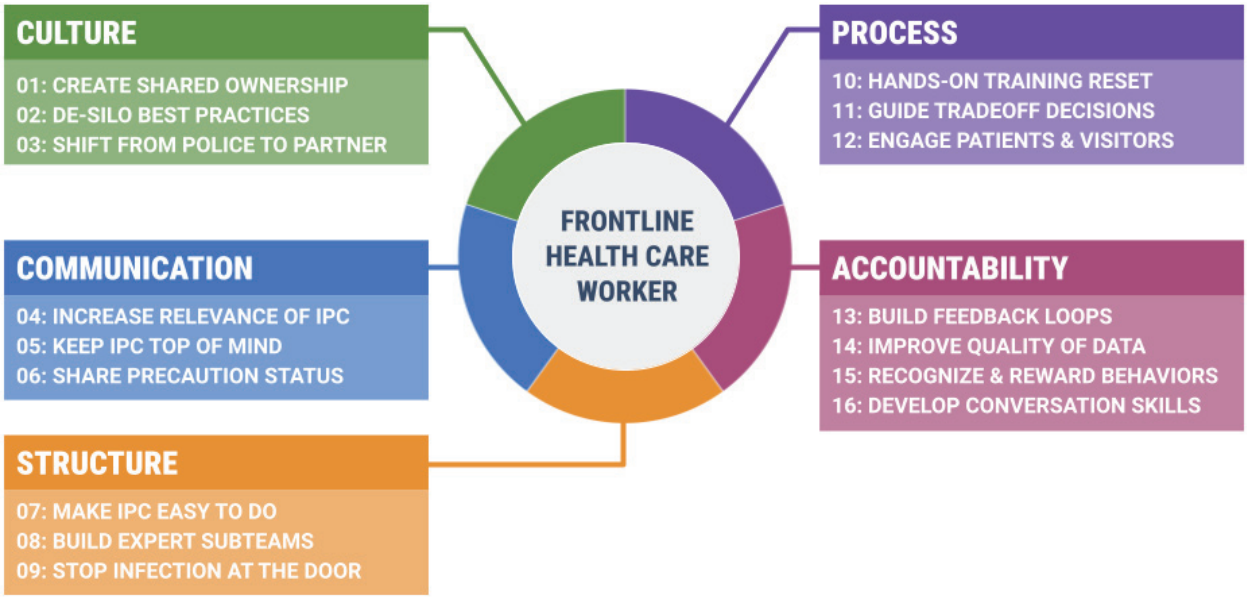
PHASE 1

Discovery: Insights and Opportunities

The purpose of the discovery phase was to gain a complete understanding of the problem of IPC from the viewpoint of the people responsible for executing IPC processes and procedures. This included learning about their physical environment, team structure and hierarchy and workflows.

Across the organizations, we found team IPC behaviors (e.g., implementing health care-associated infection prevention bundles, following personal protective equipment best practices) had weakened due to 1) staffing shortages, 2) increased patient demand, 3) differences in commitment and motivation, 4) growth in temporary staff and 5) drift in practice. Frontline health care workers did not have a shared mental model or universal definition of "my team." Further, how they think about the identity of their team shapes whether they include IPC behaviors — some see IPC as essential to "what we are all about" while others see IPC as "an extra thing" on top of patient care. In addition, because health care teams are dynamic with temporary or floating roles, it may hamper team unity and understanding of common goals. When there is a weak sense of belonging to a core team, everything defaults to the individual. The team's ability to coalesce and incorporate IPC practices into daily routines becomes more difficult.

Based on these findings, we outlined five dimensions of a "strong team" that provide the necessary environment for teams to grow and optimal IPC behaviors to emerge. Opportunities to improve each dimension were also identified.



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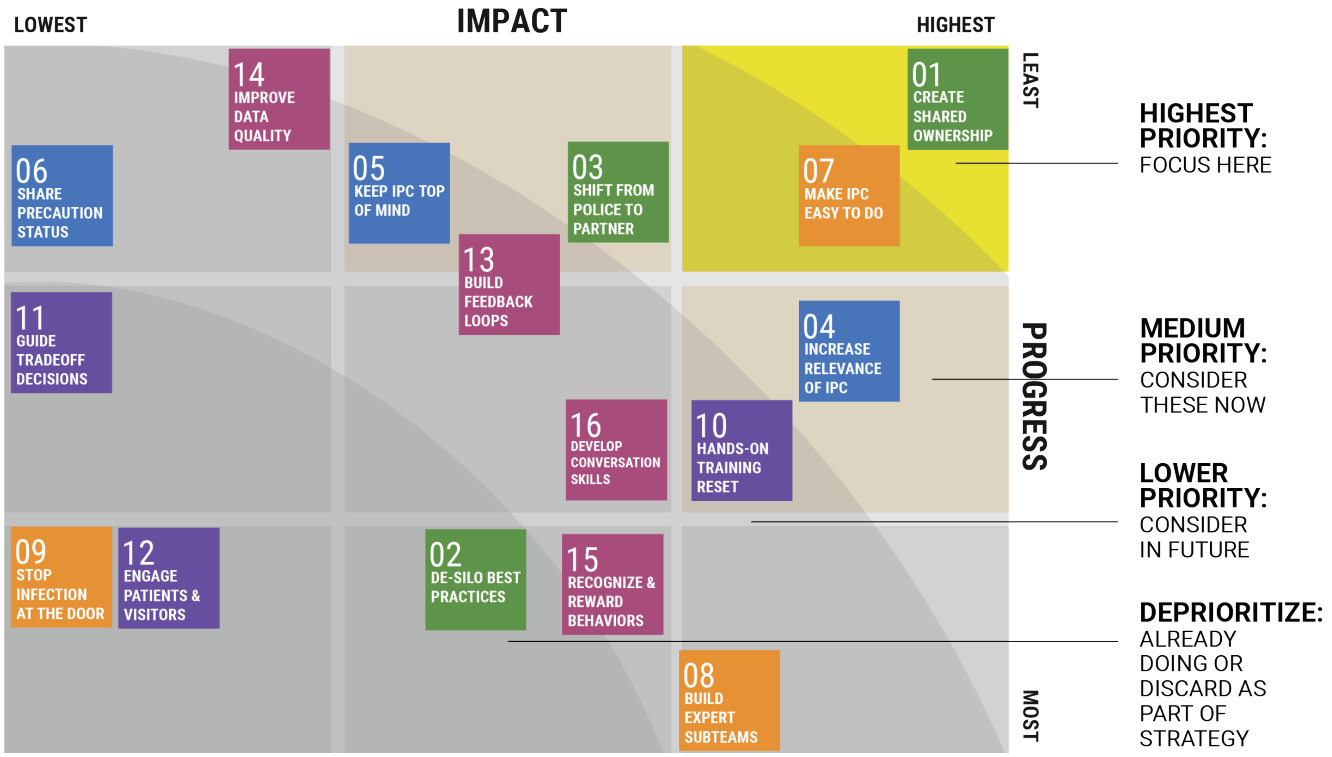
PHASE 2

Strategy: Prioritized Opportunities

With the completion of the discovery phase, the 16 identified opportunities were rated by hospital partner leadership based on impact, then progress made so far. Two rose to the top based on a combined score of "highest impact" and "least progress made."

PRIORITIZATION: RESULTS



The group's top choice was "Create Shared Ownership" as it rated highest opportunity for impact, least amount of progress made so far and is applicable across dimensions of a strong team, geographics and care settings.

Feedback was also synthesized into an opportunity roadmap over time, showing how to break down the challenge into manageable parts of time. "Create Shared Ownership" is one of the first steps toward IPC habit formation, while the other highly prioritized opportunity of "Make IPC Easy To Do" shortly follows.

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Step 1: Start with building intent [near-term]

- **Create a sense of shared ownership of IPC behaviors by helping team members see how IPC is relevant to them.**

Not all teams see IPC as central to their work. If they don't intend to do IPC behaviors, enforcement efforts will be in vain. When teams see IPC as core to their identity, IPC habits are strong. It goes from being seen as an extra task or "not our job," to essential in who they are and what they do. Therefore, the first task is to give them a sense of shared ownership (Opportunity #1) in part by helping them see how IPC is relevant to them (Opportunity #4).

Step 2: Help teams establish habits [mid-term]

- **Make IPC easier to do and partner with teams.**

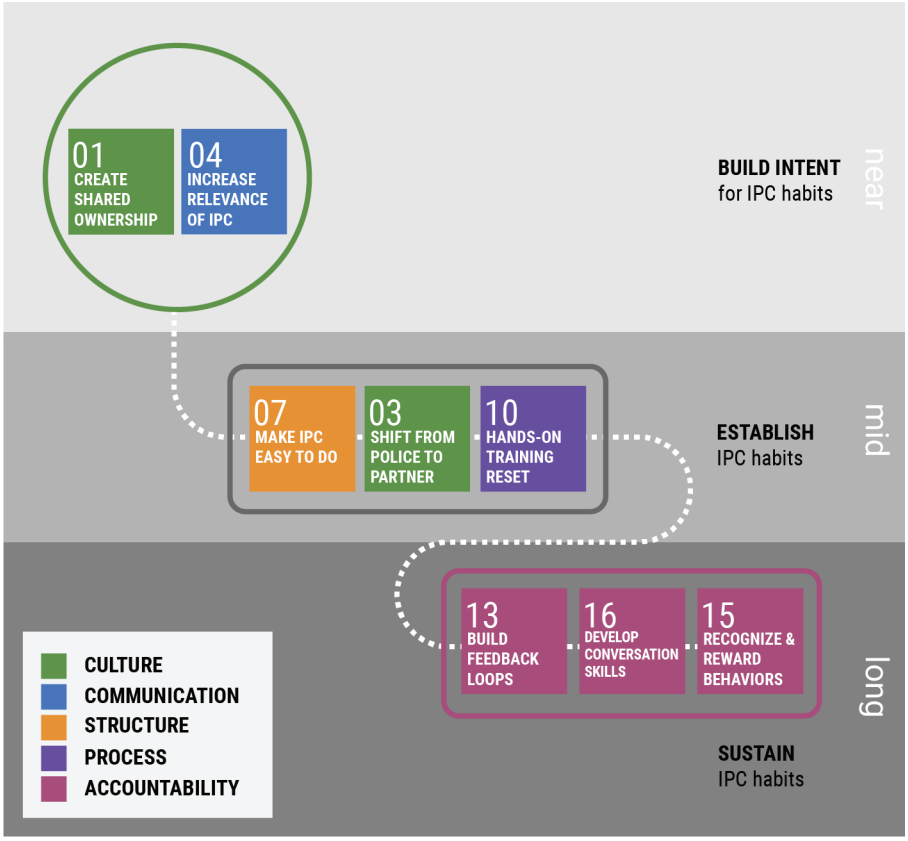
Once teams intend to do IPC behaviors, leaders need to make it easier for them (Opportunity #7) to support habit formation. Start by partnering with teams rather than policing them (Opportunity #3), and consider structural changes such as level-setting as a team on processes and standards of care for IPC (Opportunity #10).

Step 3: Help teams sustain habits [long-term]

- **Use positive, team-based accountability efforts.**

Establishing new habits is difficult but maintaining them is even harder. Once teams are equipped with established habits, support them with recognition and rewards (Opportunity #15), encourage spread of habits to other teams, provide continuous feedback (Opportunity #13) and build soft skills, such as speaking up with peers and superiors (Opportunity #16), to hold each other accountable for IPC and reinforce the culture and behaviors.

OPPORTUNITY ROADMAP



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PHASE 3

Solutioning: Final Concepts

The opportunity roadmap drove the final phase of the project — collaboration. Frontline team members were invited to cocreate solutions to "Creating Shared Ownership" (Opportunity #1) via four design sprint sessions. In the first two sessions, they generated concepts that would help frontline teams feel ownership of IPC, so they would perform IPC behaviors consistently. In the remaining sessions, they prioritized then refined the concepts. Top ideas included:

1. **Storyboard** — share good and bad examples of IPC outcomes in a visual, educational format
   Teams don't often see consequences of their IPC efforts; a storyboard helps teams connect the dots between current behavior and delayed consequences.
2. **Every Role Campaign** — emphasize that every person has a role in preventing Health care-Associated Infections (HAIs)
   Frontline team members may not recognize how their actions fit into the bigger experience of the patient and other staff.
3. **Infection Preventionist for a Day** — job shadow to deepen understanding and notice new ideas
   Teams need to understand the "why" behind IPC in order to improve their practices; shadowing an infection preventionist may bring a new perspective.
4. **Positive Speak-Up Experience** — host positive, engaging group info-sharing sessions
   Information isn't shared when individuals experience finger-pointing after speaking up.
5. **Personal Stories** — share patient/family and clinician stories to convey the impact of infection prevention
   IPC behaviors are perceived as isolated and disconnected from the human benefits.
6. **IPC Games** — offer engaging, gamified team learning
   Training and learning are individualized, and don't reinforce team approaches or identity.
7. **Frontline Idea Feedback Loop** — include frontline workers in proposing practice changes
   Changes are perceived as "top-down" and not the result of frontline team member participation.
8. **Field Awards** — celebrate team/hospital recognition across the field
   Recognition with prestige outside of the hospital can be a strong team motivator.

The project hospitals recommended these concepts could create shared ownership. We encourage hospital teams to choose, develop and implement a solution that is feasible and best meets their needs — or several.

Conclusion

The HCD approach emphasizes both the perspective and participation of frontline team members, resulting in more inclusive, tailored and empowering solutions, as well as enabling creative confidence, increasing solution quality, promoting collaboration, considering ethical considerations and supporting teams' needs. In this project, we used HCD to tackle infection prevention and control specifically. However, HCD can be used by hospitals to address any topic or team-based workflow to generate solutions with buy-in.

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