November 5, 2026

Understanding context, engaging people: Human-centered design in implementation science

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OUR CENTRAL QUESTION

How might we move from identifying implementation barriers to co-designing and testing strategies that respond to people's needs and realities?

SHARE IN THE CHAT

Think of an intervention that struggled to be implemented.

What made implementation harder than expected?

What is human-centered design?

01 Set of mindsets

1. Creative confidence
2. Embrace ambiguity
3. Empathy
4. Iterate, iterate, iterate
5. Learn from failure
6. Make it
7. Optimism

02 Entire process

Design as an end-to-end process: ”The program is scoped to match the design process through its entire cycle, from informing the program design at the start, to implementing solutions at the end.” *(Design for Health, n.d.)*

See *Design For Health Design Dosages*

03 Discrete methods

Design as a spark: “Apply design methods to spark new ideas, thinking, or concepts or to deliver specific outputs as part of a larger program.”

Design as an ingredient: “Design is used in combination with other approaches across the program cycle.” *(Design for Health, n.d.)*

A practical HCD method menu from designkit.org

Identify and understand barriers	Immersion • Five whys • **Journey mapping**
Co-design implementation strategies	How might we • **Co-creation sessions** • Brainstorming
Test + refine strategies	Storyboards • Role play • **Rapid prototyping**

How have HCD and IS been combined?

Complementary approaches

Shared focus on context, stakeholders, and real-world impact – with opportunities to combine their distinct methods and strengths.

Chen et al., 2021; Dopp et al., 2019; Dopp et al., 2020; Lyon et al., 2025

Integration across phases

HCD methods have been used to understand experiences, co-develop implementation strategies, and iteratively test and refine them.

Chen et al., 2021; Haines et al., 2021; Lyon et al., 2025

Emerging evidence base

Promising applications, but limited evidence about which combinations add value, under what conditions, and for which outcomes. There is lots to learn here!

Bazzano et al., 2017, 2020; Lyon et al., 2025

Understanding barriers more deeply

What are some human-centered design methods?

Journey mapping

Visually map a person's experience over time, including actions, interactions, emotions, and moments of friction or opportunity.

E.g., Map the journey from first hearing about PrEP to initiating services, identifying where uncertainty, discomfort, or disengagement occurs.

Co-creation session

Bring people with different lived and professional experiences together to generate, combine, and develop potential solutions using structured creative activities.

E.g., Potential PrEP users, peer navigators, and clinic staff collaboratively redesign the referral experience.

Rapid prototyping

Create simple, low-cost representations of potential strategies and put them in front of people to observe reactions, uncover problems, and refine ideas before implementation.

E.g., Role-play a peer navigator's referral conversation or test a mock appointment invitation with potential PrEP users.

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Journey mapping example

Journey Map: From First Hearing About PrEP to Initiating Services

A sample journey for a potential PrEP user, highlighting experiences, emotions, and opportunities for support.

Journey stage	1. First exposure *Becomes aware of PrEP*	2. Explore & learn *Seeks more information*	3. Consider next steps *Decides whether to pursue*	4. Try to access *Takes action to get services*	5. Initial visit *Attends appointment*	6. Start PrEP *Initiates and begins use*
Actions	• Hears about PrEP from a friend, partner, or social media	• Looks up PrEP and how it works • Reads or watches content • Talks to a trusted person	• Weighs the pros and cons • Assesses personal risk and need • Decides whether to try to get PrEP	• Finds a clinic or service • Tries to make an appointment • Gathers needed information (e.g., insurance, ID)	• Discusses PrEP with a provider • Gets labs and a prescription • Learns how to take it	• Picks up the PrEP prescription • Starts taking it • Begins to think about ongoing refills and follow-up
Touchpoints	• Social networks (friends, partners) • Social media, community events	• Websites, videos, online forums • Community organizations • Peers or partners	• Personal reflection • Trusted friends or partners • Online information	• Clinic website or phone • Scheduling system • Clinic staff (e.g., front desk, navigator)	• Provider or clinician • Clinic environment • Educational materials	• Pharmacy (in person or mail) • Follow-up communication (e.g., text, portal, navigator)
Emotions (sample)	**Curious** ("I've heard of PrEP...")	**Interested / hopeful** ("This might be a good option for me.")	**Uncertain** ("Is it right for me? Will it be hard to get?")	**Frustrated / anxious** ("The process is confusing and takes time.")	**Reassured** ("I got my questions answered.")	**Confident / supported** ("I'm starting PrEP and feel good about it.")
Pain points / barriers	• Limited or mixed information • Misinformation or stigma	• Hard to find clear, trusted, relevant information • Uncertainty about side effects, cost, or privacy	• Questions about personal risk • Concern about judgment • Not sure where to go or what's involved	• Difficulty finding a convenient, welcoming clinic • Scheduling challenges (e.g., long wait times, limited hours) • Confusion about insurance or cost	• Feeling nervous or judged • Information can be a lot to take in • Unclear next steps	• Remembering to take it consistently • Managing refills and follow-up • Ongoing concerns about cost, privacy, or stigma
Opportunities for support	• Share accurate, relatable information in places people already are (e.g., social media, community spaces)	• Provide clear, culturally relevant, and easy-to-understand resources • Include peer perspectives	• Offer decision support (e.g., FAQs, "Is PrEP right for me?" tools) • Make it easy to connect with a staff member or peer navigator	• Simplify and streamline scheduling • Offer multiple access options (e.g., in person, telehealth) • Provide support with insurance/cost	• Create a welcoming, nonjudgmental environment • Use clear, timely communication • Reinforce what to expect next	• Enable easy refills and follow-up reminders • Offer ongoing check-ins or peer support • Address longer-term needs (e.g., side effects, adherence, life changes)

Image generated with support from OpenAI's Chat GPT-6 model

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Co-creation session example



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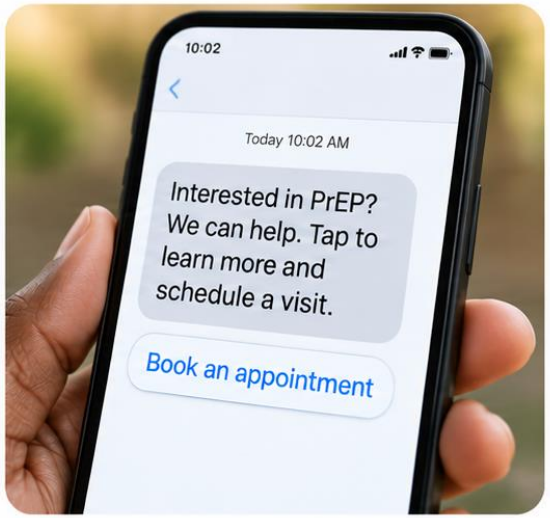
E.g., Role-play a peer navigator's referral conversation or test a mock appointment invitation with potential PrEP users.

Rapid prototyping example



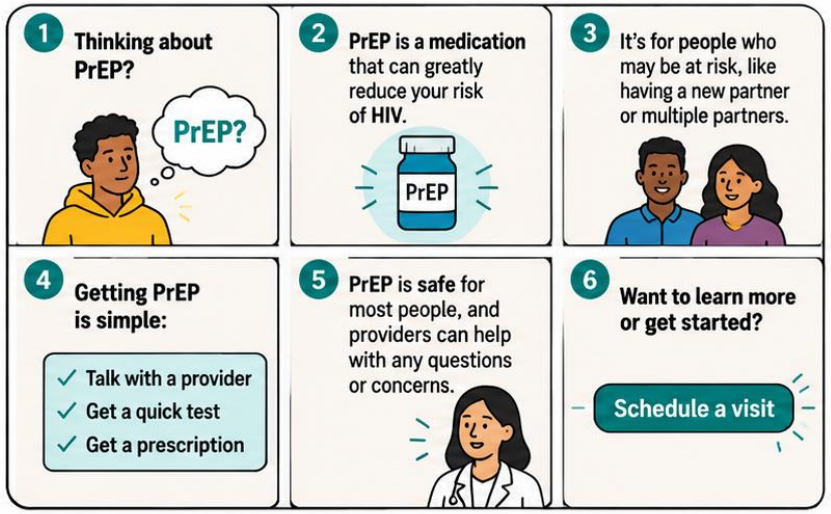
Service prototype

Practice and get feedback on a peer navigator's referral conversation (e.g., through role-play).



Communication prototype

Test a draft appointment invitation (e.g., text message) with potential PrEP users.



Information prototype

Try a simple visual (e.g., storyboard) to see if it's clear, helpful, and relevant.

Image generated with support from OpenAI's Chat GPT-6 model

Three useful reframes to highlight added value

“We already interview people. What’s different?”

Attention to lived experiences, workarounds, unmet needs, and assumptions – not only identified determinants.

“Isn’t HCD just another form of engagement?”

Opportunities for people to shape how problems are framed, strategies are generated, and decisions are made.

“Isn’t HCD about designing interventions?”

Methods for developing and refining implementation strategies, workflows, and supports – not just interventions.

Hamilton & Finley, 2019; Dopp et al., 2019, 2020



Acting on barriers

From implementation barriers to co-designed, real world strategies

Surface assumptions

What are we assuming about why this barrier exists and what people need?

→

Learn from people

What do we need to learn from the people affected by the barrier?

→

Co-design strategies

What might we try together that responds to their needs and realities?

→

Test and refine

What happens when we try it in a small way? What works, what doesn't, and what do we need to change?

Iterative, not strictly linear • Integrated with IS frameworks and evaluation

The shared implementation challenge

A clinic network is implementing an evidence-based PrEP referral and linkage-to-care protocol.

Six months later, fewer eligible individuals than expected are initiating PrEP services.

What we know: Referrals are being made, but many people don't connect with services.

Known barriers for patients

- Limited appointment times
- Referral uncertainty
- Competing priorities

Leadership's proposal: More staff training + EHR reminders

Our question: What else do we need to know before deciding?

Our task: design an implementation strategy

SURFACE ASSUMPTIONS + LEARN FROM PEOPLE

Round 1

Choose one person. Name an assumption and an empathy question.

CO-DESIGN

Round 2

Use the new insight. Generate two strategies; choose one to explore.

TEST

Round 3

Name an assumption, a tiny prototype, and what you would learn.

Round 1: Surface assumptions + learn from people

Assumptions shape how we interpret problems and design strategies. Making them explicit helps us identify what we need to learn before acting.

Choose a person whose experience you want to better understand

→

Consider their experience

What might their experience be like?

What might matter most to them?

What might make things easier or harder?

→

Name an assumption

"We're assuming that this person _____, but we haven't verified it."

→

Identify one question you could ask to explore the assumption

Round 1: Surface assumptions + learn from people

Choose a person

Person who considered PrEP but didn't initiate

→

Consider their experience

They may be uncertain about what happens after a referral.

→

Name an assumption

"We're assuming they didn't initiate PrEP because they didn't understand referral instructions, but we haven't verified it."

→

Identify one question

"Can you walk me through what happened after you received information about PrEP services?"

Round 1: Surface assumptions + learn from people

Choose a person

Provider/clinician offering PrEP services

Consider their experience

They may find it challenging to discuss PrEP during time-limited appointments

Name an assumption

“We’re assuming clinicians don’t discuss PrEP more often because they don’t have enough time, but we haven’t verified it.”

Identify one question

”Can you walk me through how conversations about PrEP typically come up during patient visits?”

Round 2: Co-design

What's a new insight?

Generate

At least two possible strategies

Choose

One strategy to explore with providers

Round 2: Co-design

New provider insight: *“We know how to make PrEP referrals, but once someone is referred, who owns the next step?”*

Generate

At least two possible strategies

Choose

One strategy to explore with providers

Round 2: Co-design

Potential strategy	What it could look like
1. Assign a follow-up owner	Designate a specific staff member or role responsible for ensuring every positive screen leads to an appropriate next step.
2. Create a warm handoff	Instead of simply providing a referral, the person conducting the screening connects the individual directly with the next provider or navigator.
3. Develop a shared follow-up protocol	Co-create a simple decision tree showing who takes action, when, and what happens if the first contact is unsuccessful.
4. Introduce a peer navigator	Offer a peer navigator who can help people understand their options, navigate services, and follow through with referrals.
5. Establish a closed-loop referral system	Create a process for confirming that a referral was received, someone assumed responsibility, and follow-up was attempted or completed.
6. Offer immediate next-step planning	Before the screening encounter ends, work with the individual to identify their preferred next step and, when appropriate, schedule or initiate it together.
7. Create a follow-up huddle	Hold a brief, regular team check-in to review unresolved referrals and determine who will take responsibility for each one.

Round 3: Test

Assumption

What must be true for the strategy to work?

Prototype

What is the smallest thing you could make or simulate?

*See *The Experimentation Field Book: A Step-by-Step Guide* for 5 common test types and 5 common prototype formats

Learning

What would you observe or ask to assess fit?

Round 3: Test for *Peer Navigator*

Assumption

What must be true for the *strategy to work?*

People who screen positive will feel comfortable connecting with a peer navigator and find their support helpful.

Prototype

What is the smallest thing you could make or simulate?

Use a short script and mock referral scenario to role-play a warm handoff from screening staff to a peer navigator (simulation per The Experimentation Field Book)

Learning

What would you observe or ask to assess fit?

Ask: "How would this interaction feel to you? What would make it more comfortable or useful?" Observe where confusion or hesitation arises.

Discussion: From barriers to strategies

1. **What changed?** How did the new insight influence the implementation strategies you considered?
2. **Who needs to be involved?** How might patients, providers, or other stakeholders shape or challenge your proposed strategy?
3. **What would you test first?** What critical assumption would you want to test before investing in implementation?

Three ways HCD can strengthen implementation strategies

Understand experience, not just barriers

Make assumptions visible and explore how implementation challenges unfold in people's everyday lives.

Design with people – not just for them

Involve affected stakeholders in interpreting findings, generating strategies, and making decisions.

Test assumptions before committee resources

Prototype strategies to learn about their acceptability, feasibility, usability, and contextual fit.

Where in your own implementation research might one of these approaches help you learn something you wouldn't otherwise know?

Some future research questions we can jointly consider

1. Does HCD change what we know?

2. Does HCD change what we design and how well it fits?

3. When do those differences justify the investment?

We offer services

Social, Behavioral, and Implementation Sciences Core
UNC Center for AIDS Research



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Q&A

Reach me at lizcchen@unc.edu.

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