RAPID DESIGN OF A CLINICAL DECISION SUPPORT TOOL FOR HOSPITAL AT HOME ADMISSIONS:

EMPLOYING QUALITATIVE INTERVIEWS AND USER PERSONAS IN THE IDENTIFICATION OF STAKEHOLDER NEEDS AND PREFERENCES



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BACKGROUND

- Despite evidence that Hospital at Home (HaH) is an effective alternative to costly inpatient hospitalization, barriers to participation limit its adoption, including complexity and uncertainty associated with HaH admission decisions.
- To inform our development of Partnering Patients and Providers for Personalized Acute Care Selection (4PACS), a health IT solution to aid HaH decision making, we employed a user-centric approach involving stakeholder interviews and user personas in the design of a 4PACS prototype for pneumonia patients at a large health system.

METHODS

- We conducted 12 IRB-approved, semi-structured qualitative interviews from December 2021 to January 2022 with patients (n=3) who received HaH treatment for pneumonia between October and November 2021; caregivers (n=2) of HaH patients; and ED, urgent care, and hospitalist providers (n=7) who had admitted patients to HaH between July and November 2021.
- Interviews were conducted to determine HaH experiences, perspectives on the 4PACS solution, and to clarify barriers and facilitators for 4PACS development among the stakeholders.
- Separate interview guides were developed for each stakeholder group, guided by the Empathy Map model for design thinking and the consolidated Framework for Implementation Research.
- Interview data were analyzed in ATLAS.ti using a combination inductive/deductive strategy based on the Constant Comparison Method and user characteristics identification.
- Interview findings were utilized to develop user personas (fictional characters representing user types) of key 4PACS stakeholder groups (n=3), consisting of basic demographic information, level of tech savviness, goals and anticipated pain points with use.
- User personas were subsequently presented to researchers and stakeholders during a participatory design workshop to elicit feedback and enable rapid co-design of 4PACS.

RESULTS





VIOLET JOHNSON

Certified Public Accountant (CPA)

Mother to 1 daughter, who has lived with her since the pandemic

Likes yoga and collecting wine

Loves to travel!

Uses technology daily

Likely to use an app



- Stakeholders reported concerns about HaH, including factors deemed to be relevant to the design of 4PACS. Responses highlighted the lack of program information as a primary gap to be addressed, as represented by the following quotation:
- "Yeah, I think, the biggest thing that I can see would be just ensuring that maybe the nursing staff or the hospital team is as clear on HaH as the HaH people. Because I think that was where my biggest confusion and concern came in was, as we were getting discharged, initially, before we got the HaH number." Other program-related concerns included capacity constraints, restricted admission hours, limited catchment area, uncertain insurance implications, and
- Stakeholders reported concerns about the 4PACS solution, including its potential conflict with clinical judgement, the app's ability to comprehensively represent multidimensional clinical profiles, a potential lack of integration with the EMR, patient and provider burden with app use.
- Pv Potential conflict with clinical judgement: "Let's say the risk score would've said that the risk of a bad outcome is extraordinarily low but there were just other features which concerned me that aren't necessarily incorporated into the risk score, that would be a deterrent to using it."
- Ability to comprehensively represent multidimensional clinical profile: "Well, I think that, certainly, an app or a risk score cannot include every clinical variable or social variable or factors and so clinician judgment has to be first and foremost. I think that's probably the main reason I wouldn't use it, if I felt like my judgment trumped any risk score."
- Pv Lack of EMR integration: "If it was a separate app that I have to add on to my phone that's already full of apps and then think to use it every time, I don't know if I'd be as likely. I could see the helpfulness in it, but I wouldn't be maybe as likely as if it was just something that was right there, anyway, on the computer where I was already in the chart [EMR]."
- Pt Patient burden with app use: "So I would say if it's too technical or too much information, it could be a little bit overwhelming."
- Provider burden with app use: "It's kind of like yet another thing to have to fill out and more buttons to click and, yet, another app to have on my phone."
- Recommendations for 4PACS included ease of use, auto populating features, appropriate health and reading literacy levels in the app content, and providing users with validity of 4PACS data, HaH FAQs, and technical assistance.
- Ease of use: "Sometimes I think the people that may need this app the most actually are gonna be some people who are a bit more elderly. So I would say the most important key is to make sure it's easy to navigate...So as long as it's something that is easy to utilize, I think that would be a big help, especially to those who are a little less familiar with tech."
- Pv Auto populating features: "If there were changes that were updated in the app that would just automatically populate and we could know things automatically, I think that's so much easier than reading through constant emails because trying to call and find out how to use the system in real time is hard when you're trying to see patients, and especially if you're the only provider...That would be a nice feature."
- Pt Appropriate health and reading literacy levels in the app content: "If the app had information that was clear to a non-doctor person [laughter] that might help make—give a better understanding of what the situation is and why you might have the HaH. I guess that would be the only thing I could think of is if it was really kind of easy for the nonmedical person to see the benefits."
- Providing validity of 4PACS data: "So I just wanted to know the data behind the app or the scores to see if they were studied, and what's their validity, and well are they accurate, and what's the possibility of accuracy of that app that I'm looking at, and not just blindly, go with the number."
- Cg Providing HaH FAQs: "It would be easier if there was a frequently asked questions section that addresses some of the concerns that people are feeling. All of those things would be I think really cool pieces of improving the app or included in an app."
- Pt Providing technical assistance for users: "Some people not tech savvy...but they gotta be able to know what they're getting into as well, you know, even in readin' it. Like, you know, you got a 80, 90-somethin'-year-old person in the hospital by themselves, they might not have a clue what to do, how to use it. And some people, you know, they can't even read, so they need somebody with them....So I would say a mediator has to be there to help them with that."

1 user persona was created for each of the 3 stakeholder groups (patients, caregivers, and providers) based on the interview findings.



Cg Caregiver

CAREGIVER USER PERSONA



- Retired police officer, with a network of retired police friends Lives with his wife of 50 years and
- father to 5 grown children • Likes to spend time in his garden and with grandchildren
- Isn't much of a cook!
- Not tech savvy—doesn't like newfangled technology and not likely to use an app

"I like things to be simple. If it's complicated, I'm not going to use it."

out for help

fluctuating admission criteria.

- Wants a good plan with clear instructions
- Wants to know how to get his questions answered: Who do I call? Where can I find Wants to have confidence in the care
- **PAIN POINTS:**
- Worries about not understanding the plan Concerned he won't know how to reach
- Anxious that he doesn't have the necessary supplies at home to care for his wife



Emergency Department (ED) docto

• The pandemic hasn't allowed for

Works out at the gym to manage

Likely to use an app if it's worthwhile

Early adopter of technology

with 6 yrs of experience

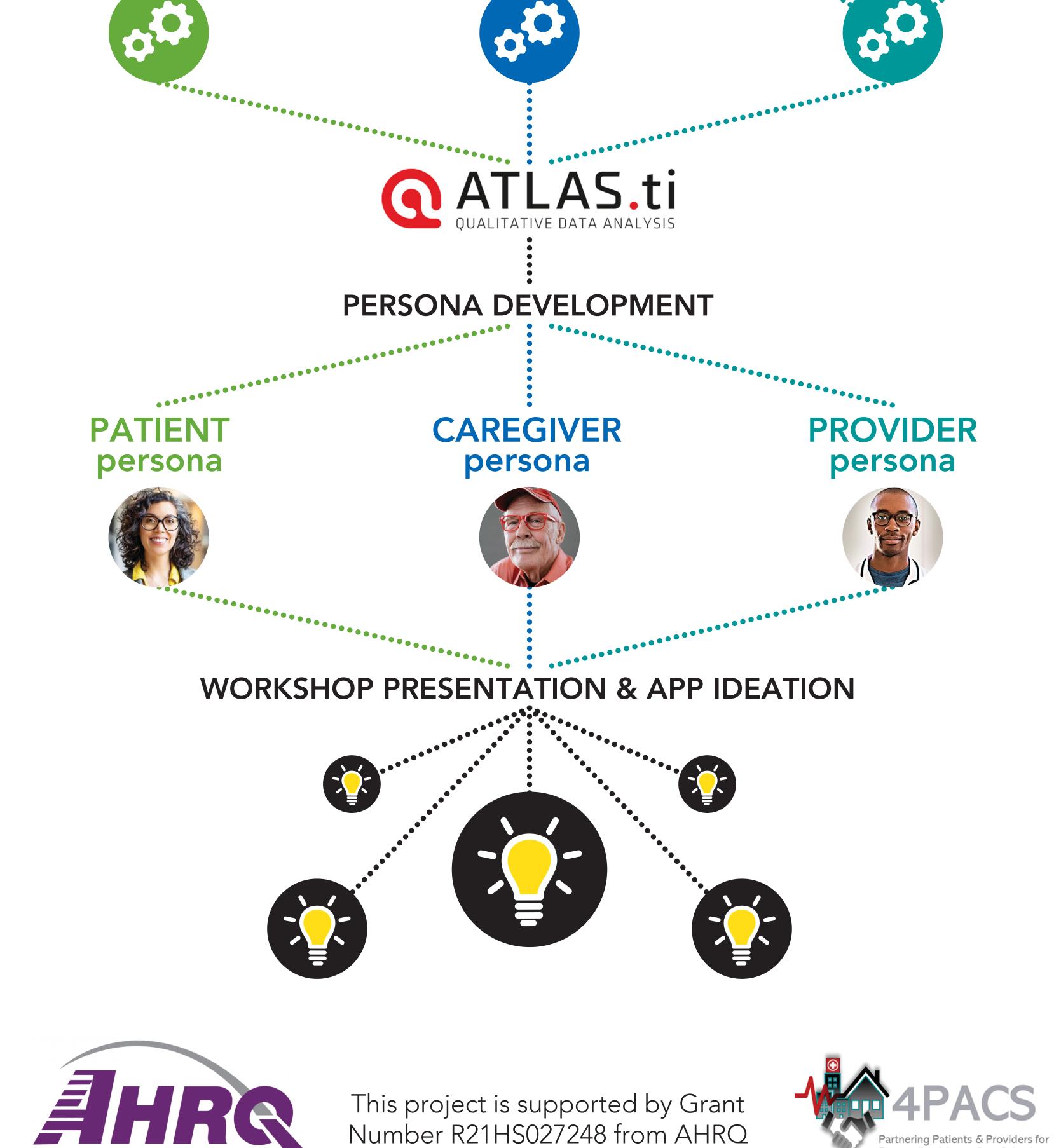
much free time

so using it would fit in my workflow."

- Needs to understand the criteria for the risk score to have confidence in using app
- Hopes the process for referral and admission becomes easier Would like expanded resources to extend
- home-based care into new regions • Lives with his wife and 2 small children **PAIN POINTS:**
 - Worried the app won't provide enough
 - information to correctly determine risk Concerned about increase provider
 - Doesn't want to download "another app"—must be embedded in EMR

CONCLUSION

Employing user-centric approaches in the development of a 4PACS prototype to aid HaH decision making provided the opportunity for rapid, participatory co-design of 4PACS with relevant stakeholders and early engagement with end users.



PATIENT USER PERSONA -

"I use technology

I need it to work

and not be compromised

Likes detailed information, that is in

Needs to have confidence in the care

Concerned about insurance coverage:

Is the program covered? What is my out-of-pocket cost?

Wants good communication with

decision made

Lack of reliable information

PAIN POINTS: