Breakout Session 7: Track A

Advancing Equity in AI-Enabled Mobile Health Tools: Community-Informed Design Considerations

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Advancing equity in AI-enabled mobile health tools: Community-informed design considerations

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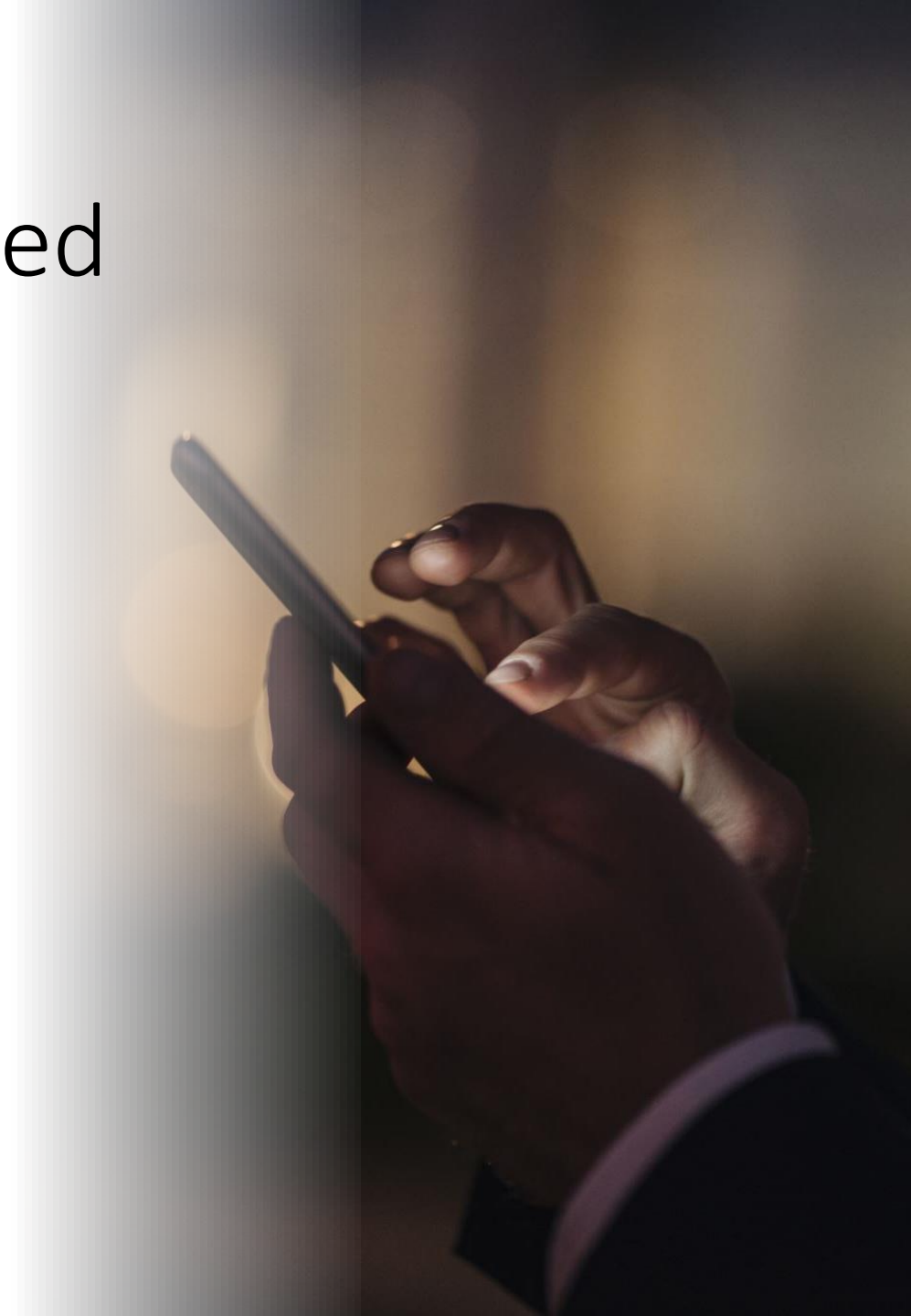

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The promise and challenges of AI-enabled mHealth

- Potential to reduce healthcare access barriers
- Especially helpful for monitoring and prediction for chronic conditions like asthma
- Access barriers and asthma disparately impact Hispanic and Latinx communities – but current mHealth practices have potential to exacerbate disparities

We sought to incorporate community considerations into mHealth development and implementation

Aim 1: Create culturally relevant multimedia educational materials

BOOSTER SHOT media

Aim 2: Examine community perspectives

Recruited Hispanic and Latinx community members through longstanding community partnerships across Central (rural) and Western (urban) Washington

8 virtual focus groups (May – Sept 2023), stratified by:

- language (English/Spanish)
- geography (rural/urban)

Participant demographics (n=48)

	Spanish (n=32)		English (n=16)		
	Urban (n=18)	**Rural (n=14)**	**Urban (n=6)**	**Rural (n=10)**	**Total (n=48)**
Mean age in years (standard deviation)	54 (SD=13)	42 (SD=11)	33 (SD=9)	39 (SD=11)	**45 (SD=14)**
Gender identity					
Woman	16 (89%)	13 (93%)	5 (83%)	9 (90%)	**43 (90%)**
Race or ethnicity					
Native American or Alaska Native	1 (6%)	0 (0%)	0 (0%)	0 (0%)	**1 (2%)**
Hispanic, Latino, or of Spanish Origin	17* (94%)	14 (100%)	6 (100%)	10 (100%)	**47* (98%)**
White	1* (6%)	0 (0%)	0 (0%)	0 (0%)	**1* (2%)**
Birthplace					
Outside the United States**	17 (94%)	14 (100%)	2 (33%)	5 (50%)	**38 (79%)**
Educational attainment					
Elementary school or lower	3 (17%)	6 (43%)	0 (0%)	0 (0%)	**9 (19%)**
Some high school or degree/GED	12 (67%)	6 (43%)	1 (17%)	3 (30%)	**22 (46%)**
Any post-high school education	3 (17%)	2 (14%)	5 (83%)	7 (70%)	**17 (35%)**
Health insurance					
Employer-sponsored	3 (17%)	4 (29%)	3 (50%)	6 (60%)	**16 (33%)**
Public	6 (33%)	3 (21%)	1 (16%)	3 (30%)	**13 (27%)**
None	8 (44%)	6 (43%)	1 (16%)	1 (10%)	**16 (33%)**

** Participant selected more than 1 option; ** Countries of origin listed: Mexico (n=35), Argentina (n=2), Colombia (n=1)*

Participant mHealth and asthma experience

	Spanish (n=32)		English (n=16)		
	Urban (n=18)	**Rural (n=14)**	**Urban (n=6)**	**Rural (n=10)**	**Total (n=48)**
Mobile device and smartphone comfort					
Very or somewhat comfortable	14 (77.8%)	12 (85.7%)	6 (100.0%)	9 (90.0%)	**41 (85.4%)**
Current or prior use of mHealth apps					
Uses or has used mHealth apps	8 (44%)	8 (57%)	5 (83%)	8 (80%)	**29 (60%)**
Asthma experience					
Has been diagnosed with asthma	3 (17%)	2 (14%)	0 (0%)	2* (20%)	**7 (15%)**
Knows someone with asthma	9 (50%)	5 (36%)	6 (100%)	8* (80%)	**28 (58%)**

** Participant selected more than 1 option*

Themes

Benefits

mHealth is seen as beneficial for promoting health and peace of mind

Barriers

Practical factors create significant barriers to using mHealth in daily life

Comfort and familiarity

Some are unaware of, unfamiliar with, or not comfortable using technology and may benefit from personalized support

Human-technology interactions

Reliance on technology must be balanced with human judgment

Data sharing

Seen as valuable for limited uses but raises privacy concerns

Potential for value vs. real-world barriers

"It would really benefit in preventing people from going really bad to the hospital and flooding the hospital with people. Instead, they can use their devices and go to their doctor."

—Rural, English-speaking participant (Theme 1)

"Will the insurance cover for it? …. For those who have more than one person in the family, it will cost a lot of money."

—Rural, English-speaking participant (Theme 2)

"[A monitor] would be a safer way where we had one more alert to wake up quickly and run to [our child's] room to help them."

—Rural, Spanish-speaking participant (translated) (Theme 1)

"Especially for Latino families, I think we need more person-to-person support … having that person who can guide you, help you and get you out of doubt when using new things."

— Urban, English-speaking participant (Theme 3)

Are the benefits worth the risks?

"My opinion is that people should not become dependent on electronic devices or technology to either rescue or make them feel safe. I think it's taken over our humanness or our ability to care for oneself."

—Rural, English-speaking participant (Theme 4)

"I know that it is to improve the service or the product, but it is also like a double-edged sword, because your information goes into more hands …. I would like to have a little more privacy."

— Urban, Spanish-speaking participant (translated) (Theme 5)

Community focus group takeaways

mHealth is viewed as beneficial, and limited data sharing can be acceptable insofar as it furthers community-relevant benefits and doesn’t cause harm.

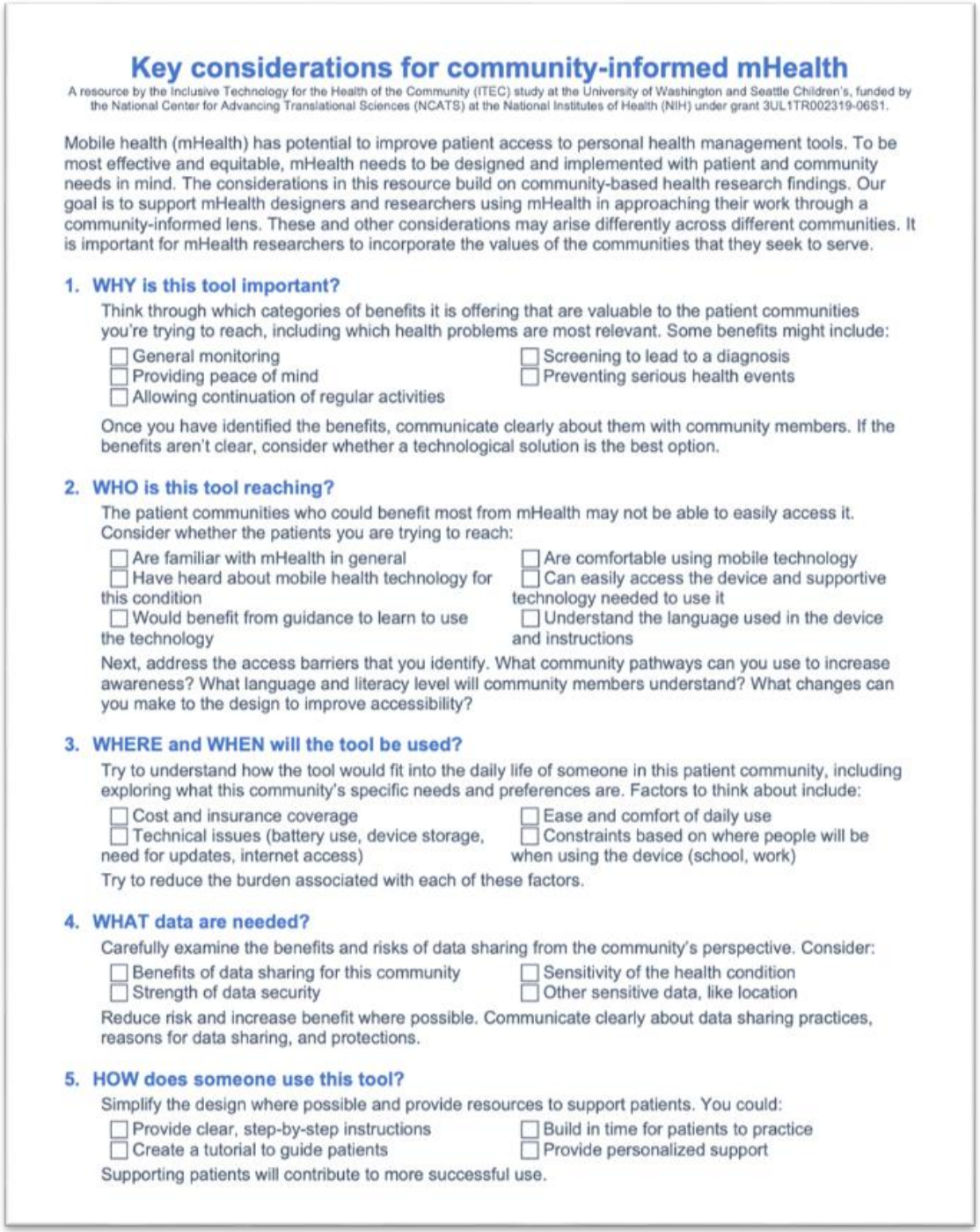
But it must be designed and offered in a way that accounts for people's daily lives and needs. For example:

- Available to those who will find it helpful
- Minimal technological burdens
- Tutorials
- Manual overrides
- Control over data sharing

Aim 3: Create a resource for mHealth researchers to incorporate community values

Draft resource and feedback

- Initial 2-page draft summarizing findings and key considerations
- Completed researcher feedback sessions (Jan – Feb 2024)
  - 3 computer science teams (n=14)
  - 2 clinical research teams (n=5)
- Key areas of feedback
  - Clarify audience: development vs. implementation
  - Expand beyond our findings
  - Specify actions



Key considerations for community-informed mHealth

A resource by the Inclusive Technology for the Health of the Community (ITEC) study at the University of Washington and Seattle Children's, funded by the National Center for Advancing Translational Sciences (NCATS) at the National Institutes of Health (NIH) under grant 3UL1TR002319-06S1.

Mobile health (mHealth) has potential to improve patient access to personal health management tools. To be most effective and equitable, mHealth needs to be designed and implemented with patient and community needs in mind. The considerations in this resource build on community-based health research findings. Our goal is to support mHealth designers and researchers using mHealth in approaching their work through a community-informed lens. These and other considerations may arise differently across different communities. It is important for mHealth researchers to incorporate the values of the communities that they seek to serve.

1. WHY is this tool important?

Think through which categories of benefits it is offering that are valuable to the patient communities you're trying to reach, including which health problems are most relevant. Some benefits might include:

- ☐ General monitoring
- ☐ Providing peace of mind
- ☐ Allowing continuation of regular activities
- ☐ Screening to lead to a diagnosis
- ☐ Preventing serious health events

Once you have identified the benefits, communicate clearly about them with community members. If the benefits aren't clear, consider whether a technological solution is the best option.

2. WHO is this tool reaching?

The patient communities who could benefit most from mHealth may not be able to easily access it. Consider whether the patients you are trying to reach:

- ☐ Are familiar with mHealth in general
- ☐ Have heard about mobile health technology for this condition
- ☐ Would benefit from guidance to learn to use the technology
- ☐ Are comfortable using mobile technology
- ☐ Can easily access the device and supportive technology needed to use it
- ☐ Understand the language used in the device and instructions

Next, address the access barriers that you identify. What community pathways can you use to increase awareness? What language and literacy level will community members understand? What changes can you make to the design to improve accessibility?

3. WHERE and WHEN will the tool be used?

Try to understand how the tool would fit into the daily life of someone in this patient community, including exploring what this community's specific needs and preferences are. Factors to think about include:

- ☐ Cost and insurance coverage
- ☐ Technical issues (battery use, device storage, need for updates, internet access)
- ☐ Ease and comfort of daily use
- ☐ Constraints based on where people will be when using the device (school, work)

Try to reduce the burden associated with each of these factors.

4. WHAT data are needed?

Carefully examine the benefits and risks of data sharing from the community's perspective. Consider:

- ☐ Benefits of data sharing for this community
- ☐ Strength of data security
- ☐ Sensitivity of the health condition
- ☐ Other sensitive data, like location

Reduce risk and increase benefit where possible. Communicate clearly about data sharing practices, reasons for data sharing, and protections.

5. HOW does someone use this tool?

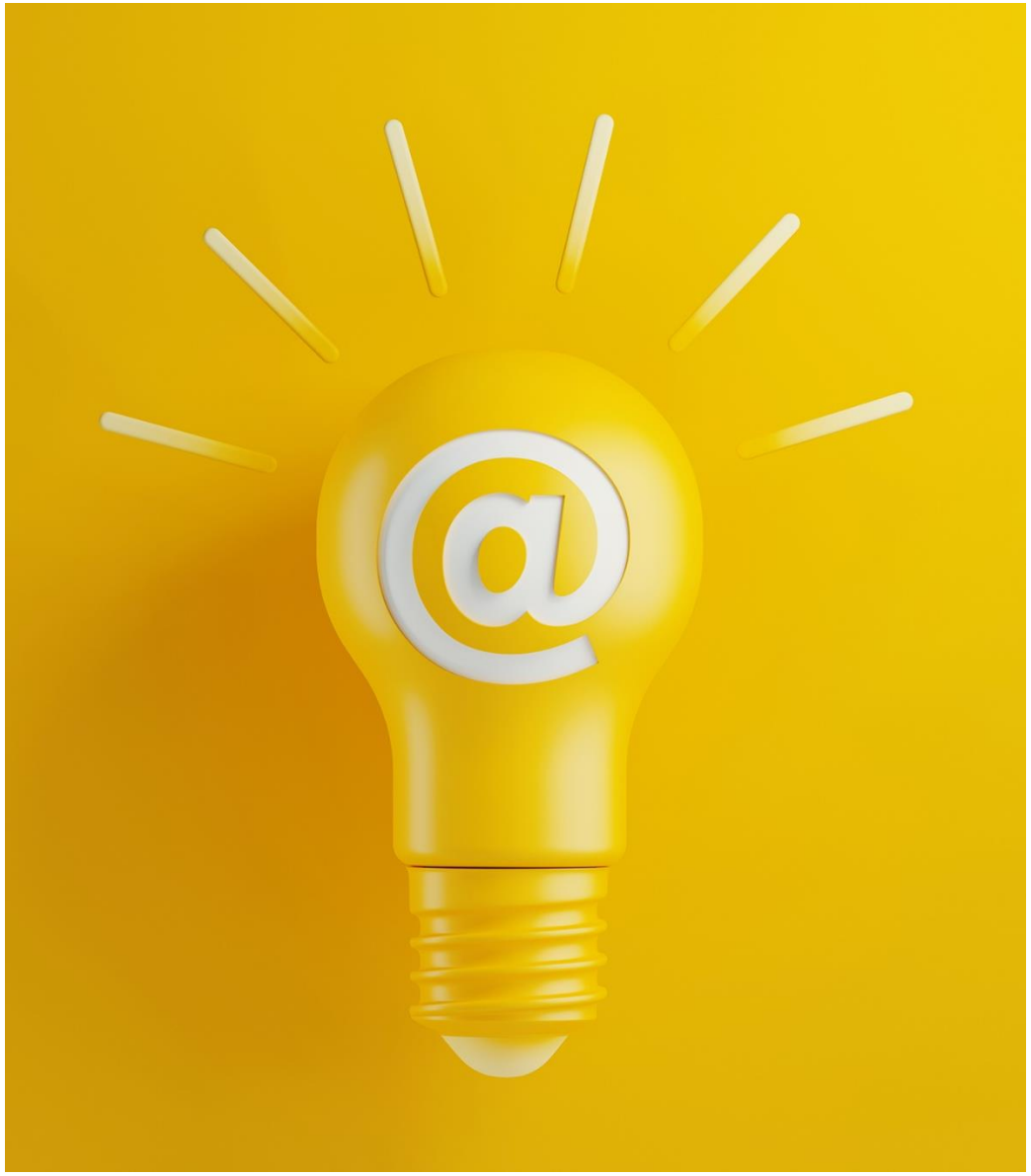
Simplify the design where possible and provide resources to support patients. You could:

- ☐ Provide clear, step-by-step instructions
- ☐ Create a tutorial to guide patients
- ☐ Build in time for patients to practice
- ☐ Provide personalized support

Supporting patients will contribute to more successful use.

Next steps and future plans

- Refine, implement, and evaluate design resource
- Further explore community attitudes
  - Deeper dive on AI/ML
  - Particularly sensitive health conditions (mental health)
  - Actual experiences using mHealth (vs hypotheticals)



Thank you!

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