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Making an App for That: Pediatric Mobile Health that Reflects Patients and Clinical Team Needs

July 28, 2020

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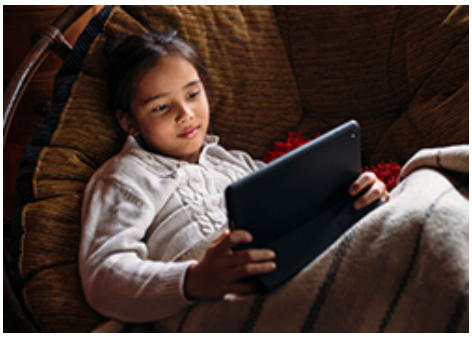
Article type: Hospital Pediatrics Blog



In a recently published study in *Hospital Pediatrics*(10.1542/hpeds.2020-0076), Cheng and colleagues created a mobile app for use by families caring for children requiring enteral feeds. App-based technology is often seen as intuitively designed and easy to adopt. A cornerstone of modern life for most smart phone users, apps provide value and leverage an iterative structure that allows for updates to be pushed out as improvements are made.

Cheng et al sought to create an app that would help support families with medical complexity and eventually improve clinical outcomes. However, the first step of this effort, detailed in this paper, is to design the app in collaboration with users. Through a multi-step iterative process, the authors focused on input and observations from patients, families, and other clinical team members to develop the app.

The authors describe 6 different ‘personas’ of their participants, ranging from confident caregivers, ‘supporting case’, clinicians and nutritionists. Using validated scales of usability, the authors successfully reflect that mobile apps, particularly those for complex medical conditions, are not a one-step process with a single user group. Particularly if the app is to capture information contributed by a range of patients, caregiver and clinical team members, a rigorous approach of iterative usability is more likely to produce easily adopted technology.

The authors used two common usability scales in their study: the NASA TLX and the system usability score. Both are well known and relatively simple to score and compare and are used in many technology settings, which allowed the authors to compare the usability of their app to others used in different settings and provide an objective measure. The iterations focused on app simplification, functionality consistency, and user-experience and produced a mean score of 76 (above average) usability in the final product.

Additionally, the study team used screen recordings to perform time measures for key steps and demonstrated improvement at each ‘wave’ of iterative improvement. For example, creating an account in the first wave took 7 minutes and was reduced to 2.4 minutes by the third wave of design.

This study outlines a focused, intentional development of a mobile health app that successfully includes not only patient satisfaction, but input from the clinical teams utilizing them to provide care. As has been reflected during the rapid adoption of telehealth second to COVID-19, iterative design is key to meet the rising and changing needs when using new technology in clinical spaces.

Overall, health care has adopted elements of usability slowly and really only gained momentum over the last decade, particularly in pediatric care, supporting usability for patients has not been as robustly adopted as it has for adult patients. Usability in pediatric mobile apps is one component, but scalability drives widespread adoption. Additionally, taxonomy for where and how patient-contributed data must be prioritized to help apps like this realize their full potential. Cheng and colleagues laid a strong foundation for the adoption of the mobile app; future work will inform the clinical efficacy of the tool.

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