

EMPOWER Rare Disease Health Research Study Powered by Pattern Health

The Duke EMPOWER study team partnered with Pattern to help patients with Interstitial Lung Disease discover relevant clinical trials, access information and exercise plans, track biometrics, and more!

➤ **Research Title**

Duke EMPOWER, a platform to Engage, inforM, Probe, prOmote Wellness, and fostEr community among patients with Rare diseases

➤ **Principle Investigator**

Aparna Swaminathan, MD, MHS
Assistant Professor of Medicine
Duke Department of Medicine

➤ **Study Format**

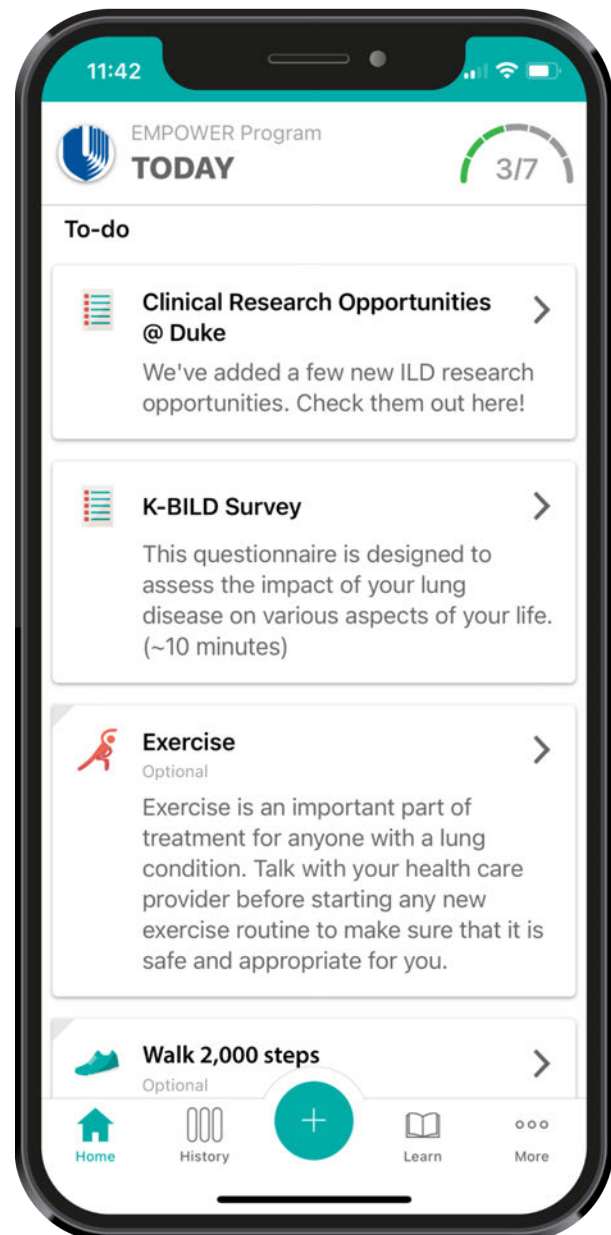
Hybrid / Single-site
(Duke Pulmonary Clinic)

➤ **Funding**

Internally funded through DCRI/DIHI
Innovation Campfire

➤ **Enrollment**

~100 participants



— EXECUTIVE SUMMARY —

Introduction: P.I. Dr. Swaminathan wanted to create a platform to increase enrollment in ongoing research studies while simultaneously providing disease-specific education, promoting healthy behaviors, and collecting longitudinal patient-reported and biometric data in patients with Inflammatory Lung Disease (ILD). With internal funding from the “Innovation Campfire” secured, delivering an effective solution quickly and cost-effectively was paramount.

Finding a Partner: Dr. Swaminathan explored internal development, but timelines would not match her needs. Pattern came strongly recommended by colleagues, and they were able to meet the timeline, budget, and quality requirements of the project.

Method: Pattern worked closely with the study team to develop a participant experience available through the Pattern Health mobile app. The app included registration, eConsent, group chat, video-based and written educational content, exercise videos, biometric collection through integrated devices, and opportunities to self-screen and connect to coordinators of relevant clinical trials, among other features.

Results: Approximately 100 patients with ILD participated in the research study. The app received positive feedback and succeeded in its primary measures. The resulting data will be used to publish findings and to apply for funding to expand the platform to a larger, multi-site study.



Pattern powers clinical trials and digital interventions, accelerating health innovation. Our technology supports academic and commercial-sponsored single-site, multi-site, decentralized, and hybrid clinical trials. Our platform can improve trial participation, engagement, and efficiency. Looking for a technology partner to power your research? [Let's talk.](#)

[Contact Us](#)

— INTRODUCTION —

Patient engagement and recruitment in clinical studies present a challenge across therapeutic areas, particularly in rare diseases. Using interstitial lung disease (ILD) as an example of a rare disease, the objective of this study was to determine if a smartphone application (app) could increase enrollment in ongoing research studies while simultaneously providing disease-specific education, promoting healthy behaviors, and collecting longitudinal patient-reported and biometric data.

“We wanted to put the patient at the center of the discovery and decision process to join relevant clinical trials.” - Dr. Swaminathan

In support of this project, Dr. Swaminathan pursued funding through the inaugural 2021 DCRI/DIHI Innovation Campfire season. The Innovation Campfire is an internal competition at Duke to fund fast-moving pilot projects. Funded projects are provided a one-year time frame—an intentionally short timeline to prove that research can move quickly. Of the 18 proposals submitted, eight were selected for the final presentations, and five winners were selected, including Dr. Swaminathan’s EMPOWER.

— FINDING A PARTNER —

Dr. Swaminathan needed a technology partner to support the app development needs of EMPOWER. Internal development was quickly ruled out as the relevant group had competing priorities and could not meet the time requirements of the project.

Pattern was already on Dr. Swaminathan’s radar as an existing partner to many researchers at Duke Health. Pattern came recommended having powered relevant studies at Duke and other leading academic medical centers such as [CONNECT-HF](#), [Fit Together](#), [LAPS](#), [LIFT](#), [Reboot](#), [SHEETS](#), [WiseApp](#), and more. Pattern was selected after a review process confirmed their ability to meet the timeline, budget, and quality requirements of the project.

“I was impressed by Pattern’s body of work and their ability to get up and running quickly.” - Dr. Swaminathan

— METHOD —

Pattern collaborated closely with the EMPOWER study team to develop the EMPOWER app for ILD patients available through the Pattern Health app (iOS & Android). The app provided ILD-specific patient education, both video-based and written, as well as information about other ongoing ILD-related research studies at Duke University Health System, including inclusion/exclusion criteria and the opportunity to connect with study coordinators for screening. The app also allowed participants the option to monitor self-reported exercise measures, step count, food logs, and ILD-related quality of life using the King's Brief Interstitial Lung Disease (KBILD) questionnaire. Interested participants could receive customized reminders to log food or exercise. Participants were recruited to download the app through a poster and flyers displayed in ILD clinics as well as direct messaging in the electronic medical chart.

“The working relationship with Pattern was great. Pattern was engaged and responsive in all aspects of the implementation and customization of the app. Their platform makes them uniquely capable of getting projects such as ours off the ground quickly.” - Dr. Swaminathan

[Screenshots of the EMPOWER participant experience can be found below.](#)

— RESULTS —

The Duke EMPOWER app facilitated the creation of an engaged community of patients with ILD interested in participating in research studies. Simultaneously, the app promoted healthy behaviors and facilitated the longitudinal collection of patient-reported and biometric data. The EMPOWER app suggests that a direct-to-patient approach is feasible in patients with ILD.

Between January 1, 2022 and October 21, 2022, 115 patients with ILD downloaded the Duke EMPOWER app, of whom 87 consented to the study of which the median (Q1, Q3) participant age was 65 (57, 73) years and 62% were female. 46 participants (53%) expressed interest in participating in a median of 2 other ILD clinical studies after reviewing inclusion/exclusion criteria. 43 participants (49%) completed the KBILD questionnaire with a median (Q1, Q3) score of 52 (47, 62). 36 participants (41%) requested reminders to exercise. 25 participants completed longitudinal post-exercise surveys to monitor progress, most (72%) of whom had requested regular exercise reminders. 22

participants (25%) opted to monitor daily step count and heart rate over a median of 76 days, walking a median of 3,965 steps daily. 34 participants (39%), most of whom had endorsed a goal of weight loss, chose to monitor nutrition through a food logging activity, recording meals over a median of 101 days. 17 participants (20%) participated in meditation modules for stress reduction.



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About Principle Investigator [Aparna Swaminathan, MD, MHS](#)



*Assistant Professor
of Medicine, Duke
Department of
Medicine*

“I specialize in interstitial lung diseases or conditions that cause lung inflammation and/or scarring. I am passionate about providing the best possible care for my patients and stay up-to-date on the most recent advances in the field. I believe it is important to take the time to explain each step of the diagnostic and treatment processes to people with interstitial lung disease. I also believe the best approach to any condition involves working together with my patient and their family to develop an individualized treatment plan.” - Dr. Swaminathan

About [Pattern Health](#)

Pattern Health is on a mission to accelerate digital health innovation. We partner with researchers, clinical innovators, and their institutions to remove the friction of technology. Our digital health platform and solutions simplify the technical and compliance components of research and digital-first care delivery so our partners can focus on improving care. Our configurable platform includes built-in security and compliance, software and device integrations, and digital health best practices. For our partners, this means “Less Hassle. More Impact.”

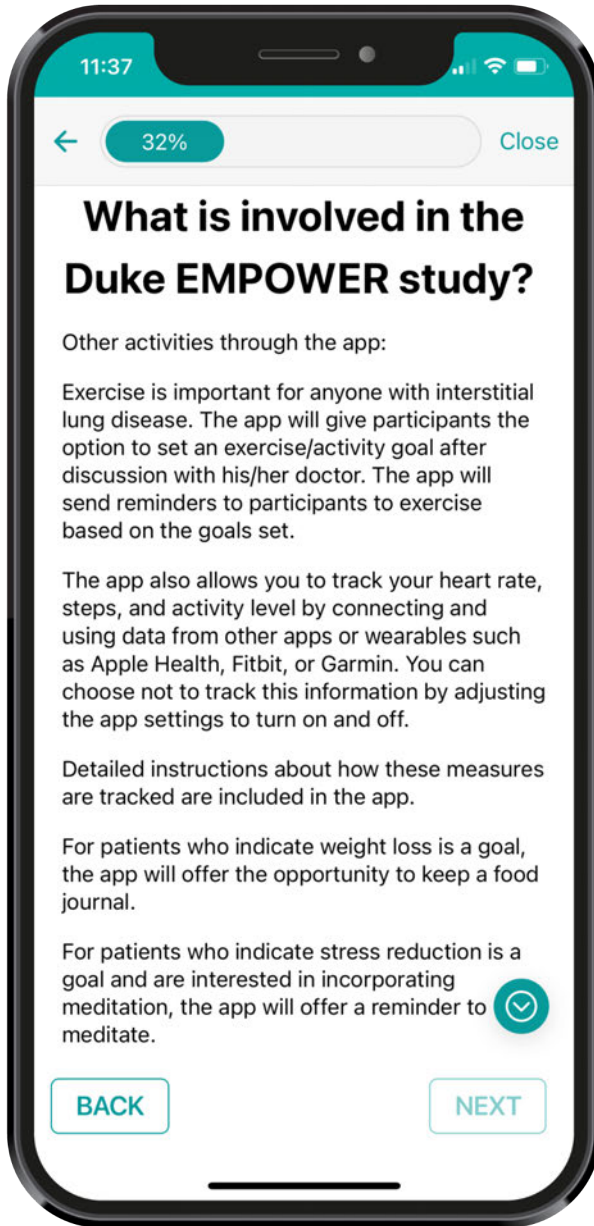
About the [Inaugural 2021 DCRI/DIHI Innovation Campfire](#)

In keeping with its history of leading the way in how clinical research should be done, the DCRI, with co-sponsor Duke Institute for Health Innovation (DIHI), is lighting a fire under its approach to innovating clinical research with a new program that gets everyone engaged with sparking ideas and fanning the flames to accelerate innovation in clinical research.

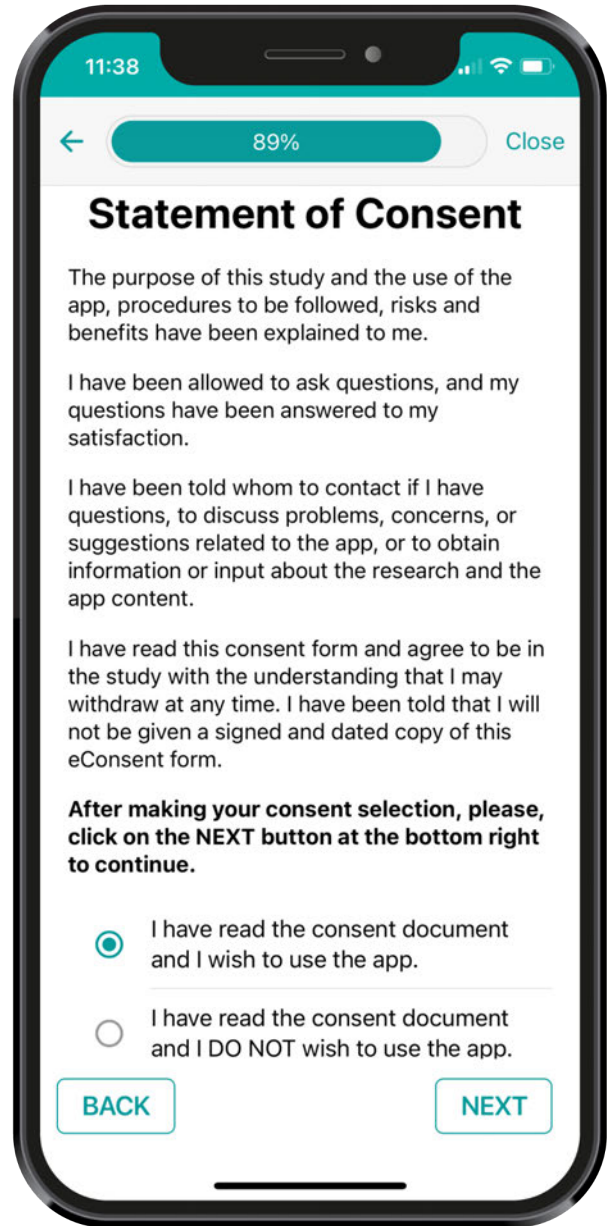
About the [Duke Department of Medicine](#)

The Duke Department of Medicine strives for excellence and equity by providing compassionate health care for all individuals, creating an inclusive environment to train the next generation of health care providers and leaders, and driving new knowledge to improve the health of our population locally and globally.

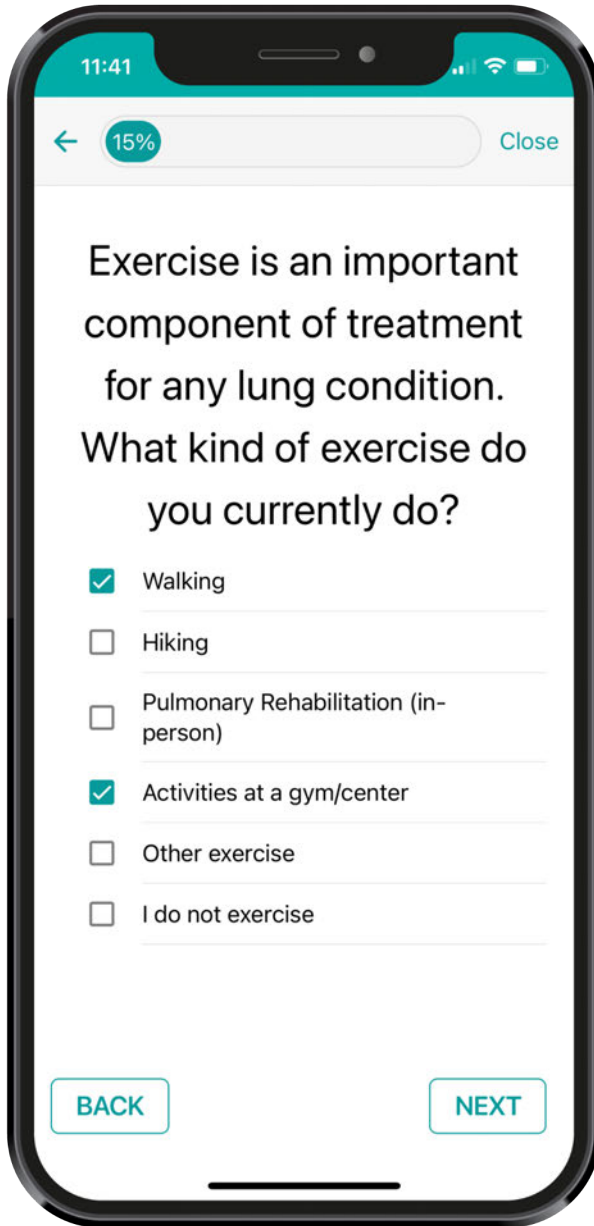
— PARTICIPANT EXPERIENCE SCREENSHOTS —



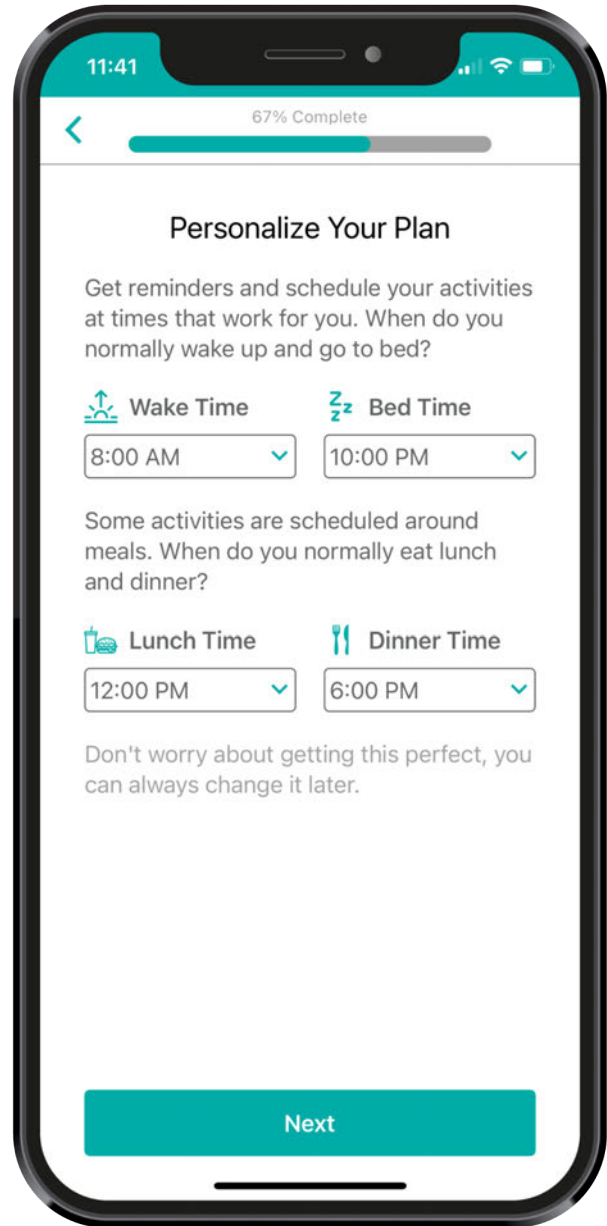
Onboarding



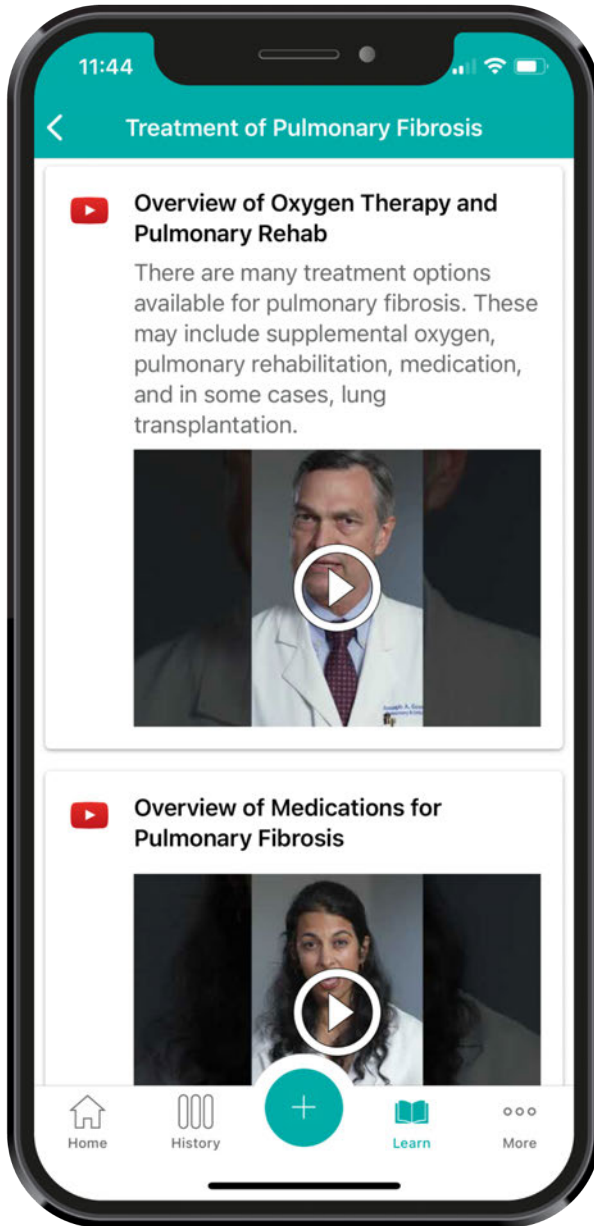
eConsent



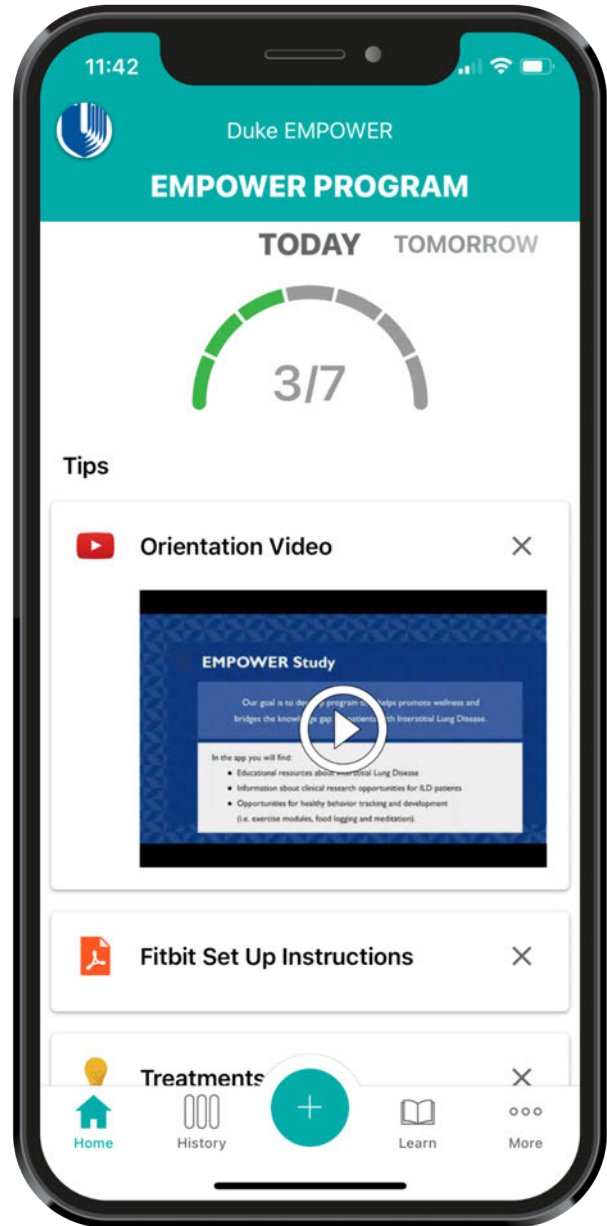
Surveys



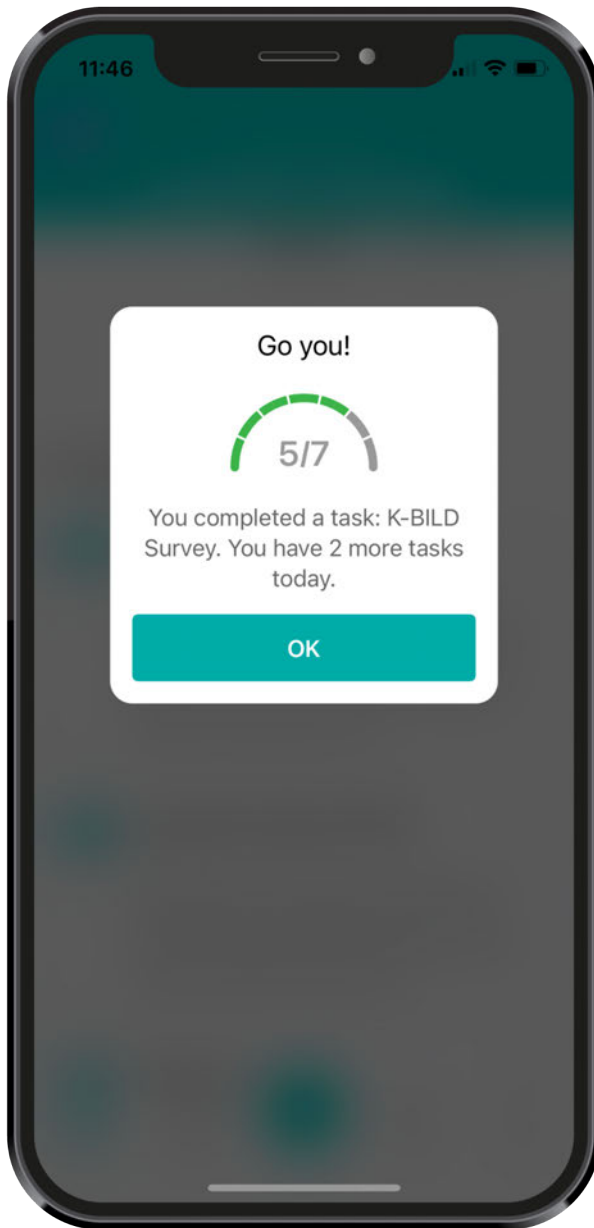
Personalization



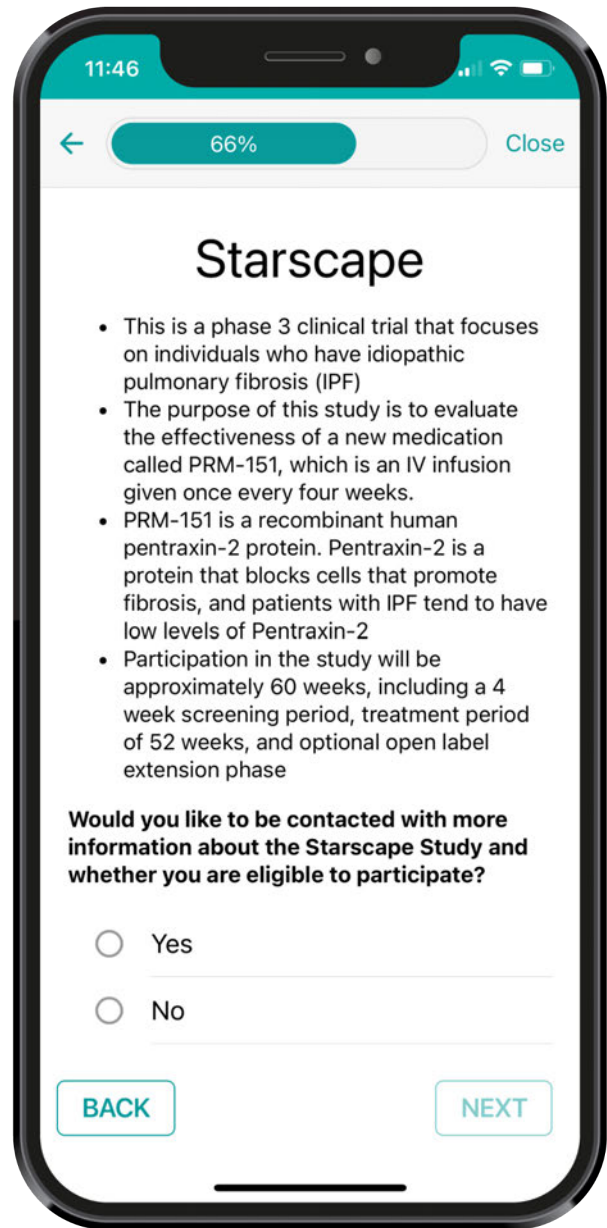
Educational Content



Homescreen



Task Tracking



Trial Notifications