

Accelerating clinical research through mobile technology

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Fitness tracker. Credit: Israel, Flickr (CC BY-NC 2.0)

Researchers face a number of challenges when conducting a clinical study.¹ Investigators spend considerable time and money recruiting and screening viable participants. If recruitment takes too long, important studies can get scrapped before they are even started. Once a study is underway, participants must sacrifice their own time to make clinic visits, which, for long-term studies, can reduce participant retention. Incorporating internet and mobile technologies into a study's design can

relieve some of these burdens. Research efforts like the University of California San Francisco's [Health eHeart Study](#) capitalize on the ubiquity and convenience of mobile technology to improve data collection and make it easier for people to participate.

The Health eHeart Study is a long-term, internet-based study exploring the causes of cardiovascular disease, the leading cause of death in the United States, affecting individuals across all ages and backgrounds.² Its prevalence makes it all the more important for researchers to be able to cast a wide net for study participants. By using online surveys, smartphone apps, and at home tests, Health eHeart makes it easier to engage participants and collect data.

"Making it easy for people to participate, making it so they don't have to come to a clinic, is important for getting large numbers and obtaining diverse populations," said Dr. Jeffrey Olgin, Professor of Medicine at UCSF and one of the lead investigators of the study. "For example, it can be hard for people in rural communities to participate [if they need to drive long distances to a lab] or to attract busy people."

Currently the study has almost 200,000 participants and having the internet to connect with this group is a major plus for the researchers. "We can leverage this group to conduct very rapid studies," Olgin said. "As an example, we are doing a trial of a smoking cessation tool. We needed 300 participants. We contacted our then 100,000 participants and had our 300 slots filled in 20 minutes." That certainly beats the months or even years that conventional recruitment methods take.

Of course participant recruitment is just the first step. Collecting accurate and reliable data is critical, which is why clinic visits are so important.

But here too, the Health eHeart study illustrates that with the right

technology, remote assessments do not sacrifice accuracy. In a study published in *Circulation: Heart Failure*, the UCSF team demonstrated that a self-administered smartphone-based version of the 6-minute walking test, an assessment of [congestive heart failure](#), is comparable to the standard walking test administered by trained professionals in a clinical setting.³

In fact, remote assessments can provide valuable 'real world data' that the controlled environment of a clinic or lab cannot. In another study, Health eHeart researchers outfitted multiple sclerosis patients with fitness trackers to monitor their step counts over four continuous weeks. The remotely collected data showed greater variability in patient mobility, a measure of disability severity which was not captured by the "snapshots of ambulatory function in a clinic-based" test, the study authors report. And as Olgin points out, as technology gets more sophisticated additional metrics relevant to cardiovascular [health](#) can be measured directly rather than relying on unreliable self-reporting.

Indeed, with all the data being collected, the team has branched out to other questions like the correlation between smartphone use and sleep quality.⁴ Anyone interested in participating, whether you are healthy, have heart disease or don't know yet are encouraged to enroll. Learn more [here](#).

More information: Public Engagement and Clinical Trials: New Models and Disruptive Technologies: Workshop Summary. Washington (DC): National Academies Press (US); 2012. Available from: www.ncbi.nlm.nih.gov/books/NBK91498/ DOI: [10.17226/13237](https://doi.org/10.17226/13237)

Gabriel C. Brooks et al. Accuracy and Usability of a Self-Administered 6-Minute Walk Test Smartphone Application CLINICAL PERSPECTIVE, *Circulation: Heart Failure* (2015). DOI: [10.1161/CIRCHEARTFAILURE.115.002062](https://doi.org/10.1161/CIRCHEARTFAILURE.115.002062)

Matthew A. Christensen et al. Direct Measurements of Smartphone Screen-Time: Relationships with Demographics and Sleep, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0165331](https://doi.org/10.1371/journal.pone.0165331)

Heart Disease Facts. www.cdc.gov/heartdisease/facts.htm

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