Virtual drug trials boost results

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Belinda H. Tan '96 says virtual drug trials can result in more diverse testing populations and boost non-white participation, which currently averages less than 10 percent. Credit: Belinda Tan

Bringing a new drug to market can cost more than two billion dollars. Not to mention years of work spent developing and testing for scientists, researchers, doctors, and trial participants. By bringing trials to the

virtual realm, Belinda H. Tan '96 has found a way to cut all that in half.

Her company, Science 37, is moving the entire drug trial process online, allowing patients anywhere in the U.S. to participate—with ease of access via phone, email, and video chat. Tan and her staff of about 180 provide end-to-end decentralized trial support, including coordinators, project managers, and doctors.

Tan, who got her MD/Ph.D. at the University of California at Los Angeles, and her co-founder first got the idea to start their venture in 2014 while working for a dermatology telemedicine company, and a drug company requested their help recruiting more people for their trials . They quickly saw the opportunity to be a one-stop-shop for virtual trials.

"There are a lot of inefficiencies with how trials are run when they require a lot of different sites—different lawyers, different contracts, and it all slows things down," says Tan. "Ultimately our mission is to accelerate biomedical research by putting patients first."

Science 37 is conducting trials in a range of therapeutic areas, including dermatology, neurology, diabetes, psychiatry, and oncology, and patient participation varies based on what is being tested. "When we did a trial for AOBiome testing a topical live bacterial drug, patients took photos of the acne on their face over the course of a three-month treatment period," says Tan. The photos were taken on a phone given to them for the trial and they sent them through NORA, Science 37's software platform. Study investigators, who were all dermatologists, evaluated the photos to assess effectiveness of the treatment.

Tan says they are using technology to democratize science. By doing drug trials remotely, people without the ability to travel to a trial or who don't have exposure to information about drug trials now have the

opportunity to participate.

"A lot of science research and drug development is confined to a very small group of institutions and participants, major universities and hospital centers," says Tan. "We've built a technology platform to support doing clinical research so that trials can be centered around patients in their homes. Participants don't need to drive four hours to a university to go to a trial every other week. They can just stay at home and an investigator, a doctor who is part of the Science 37 team, will take care of that participant during the trial remotely."

While it may seem that not all trials would be conducive to this model, Science 37 has innovative ways to make virtual trials work. For trials that require blood work or other lab tests beyond photos, the company uses a mobile nurse who can travel to participants' homes and bring back samples to a medical team for evaluation.

Not only does the virtual system help streamline the whole process and remove obstacles, it also allows trials to represent a more diverse population, something that is severely lacking in current trials. "Typically in trials in the U.S. today, less than 10 percent of the average trial will be non-white minority," says Tan. "In our trial, it was about 40 percent, which is really great in many ways. The science is better when you have a more diverse patient population and you have a better indication that your treatment can work for more people."

Science 37 recently completed the first end-to-end entirely virtual drug trial, a huge accomplishment and a benchmark for what can be achieved when this model is applied, Tan says.

"Typically, that kind of trial would have required dozens of clinic sites at hospitals and universities in order to recruit almost 400 patients. We did it with our one site in half the time projected by other companies," she

says. "By accelerating trials, it makes them cheaper and also means the drug goes to market faster, patients get better treatment faster, and they have more resources to test different types of treatment."

Although she says there are no other companies doing exactly what they are doing, Tan says she welcomes others to enter the field and even hopes to make their platform software, NORA, available for licensing.

"We don't see ourselves as the sole company doing virtual drug trials," she says. "We want to enable other interested physicians and scientists to use our tools too."

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