Clinical Trials Meet the 'Real World'

Friday, April 27, 2018

As data sources proliferate, researchers are incorporating real world evidence in clinical trials.

Using real-world settings to test potential treatments is nothing new. In the 1950s the Salk field trial of the polio vaccine randomly assigned 750,000 children to receive either the newly formulated vaccine or a placebo.

While the Salk trial proved to be a success, testing potential therapies in the real world has been relatively rare over the ensuing 60 years. Now, with more health data available from electronic sources, clinical researchers are increasingly looking outside the usual

paradigm. They're learning how health care professionals are administering medicines in different settings, and they're tracking patient data in real time to better understand treatments. Potential sources of real-world data include electronic health records, claims and billing activities, product and disease registries, and health-monitoring devices such as "wearables." (An important note: The use of real world evidence means first protecting patient's privacy and ensuring that any personally identifying information is not shared.)

A Broader Picture

Why don't some patients respond to a treatment for Crohn's disease, while others do? Scientists in Pfizer's Inflammation and Immunology research unit aim to answer this question with a combination of clinical data, genomic data and real-world evidence. By looking at these sources of information in tandem, the research team hopes to predict which patients are not likely to respond, and then design more targeted and effective medicines for this subpopulation of people with Crohn's disease.

Real-world evidence can also help researchers learn more about how medicines that are effective for a variety of patients are actually prescribed and taken. "One thing collecting real-world data can give us is a more generalizable view of how medicines are already being used in the community," says Jennifer Tursi, Medicine Team Leader in Global Product Development. "We can also set up studies with broader criteria than we would have in a traditional clinical trial, where inclusion and exclusion criteria are very stringent. When you are testing the safety and efficacy of your medicine, you must do so in a very controlled setting. But these conditions are not always representative of conditions in the real world."

Collecting real-world evidence respects patients in that it does not place any additional burdens on them. It also can save time in terms of conducting research, Tursi adds, as these records — which are already being collected and which contain information about patients' histories, how a medicine is being administered and health outcomes — can, subject to appropriate consents and contract arrangements, be incorporated into the Pfizer clinical trial database. "It's an electronic solution for collecting data that doesn't add extra work for the clinicians in the field." Tursi explains.

"Having a good relationship with all involved and understanding different data needs is key," says Timothy Joy, a Senior Director in Clinical Informatics and Innovation at Pfizer. "Real world data is often a mix of useable and unusable data. This can be a mix of textual notes and more structured numeric data. So having a clear understanding of specific data

needs for a trial is important. This understanding allows for the Trial Sponsor to filter out extraneous information and focus on the areas important to development and analysis.”

A Wider Knowledge Base

While clinical trials are usually set up to answer specific questions, a trial designed with real-world evidence in mind can address several questions at once, aimed at a more heterogeneous population, and often at a lower cost. “The trial we might propose for a drug that is a potential treatment for breast cancer could explore multiple questions,” says Jamie Phillips, Senior Director in Clinical Development and Operations for Oncology and Vaccines at Pfizer. If researchers use real-world evidence, they can explore questions relating to the effects of drug combinations, varying doses or durations of a treatment. This could give doctors a treasure trove of practical information to consult, Phillips says.

Collection of real-world evidence can complement the knowledge gained from traditional clinical trials, and is undoubtedly a trend on the rise, as health care moves toward more personalized treatments. But experts caution that data sources like electronic health records and insurance claim databases are not always organized in a research-friendly way, as the forms are not designed by researchers and may not contain the exact same categories of information. Also, the reliability of data collected from wearable devices and other apps hasn’t been established; researchers may not be able to verify easily whether or not an app accurately recorded every step a person takes in a day, for example.

While traditional clinical trials are structured, the real world can be unstructured. But with careful execution, gathering evidence in the real world can yield rich results. “Real-world evidence is another tool we have as we weigh how to focus our efforts,” says Phillips.

Originally published, Friday, April 27, 2018