

Case Study: Using Real-World Data to Expand Eligibility Criteria for Phase II Inflammation Trial

Patient enrollment remains one of the toughest challenges in clinical research, with most trials doubling their original timelines to meet enrollment goals.¹ One enrollment process ripe for improvement is determining the right eligibility criteria to screen patients.

Naturally, a sponsor ideally seeks to enroll the patients it wants to generalize results to and ultimately treat. However, when it comes to fine-tuning these eligibility criteria, the stakes are high. Ill-chosen inclusion and exclusion standards can derail an otherwise robust study, raising quality concerns and adding substantial time and cost. Many organizations have recently embraced the use of real-world data (RWD) to more quickly and accurately determine the right patient eligibility requirements for its studies, with a hope to speed recruitment and improve their trials' overall chance of success.

Challenge

While planning a global, Phase II clinical trial to evaluate a biological treatment for an inflammation indication, the study sponsor needed to understand how the eligibility criteria under consideration could impact the number of available patients (several hundred patients). Like most study teams, they had some assumptions about how to define the patient population, but those were based mostly on anecdotal evidence and previous experience. The study team wanted to utilize RWD to pressure test their assumptions and ensure that they were making data-informed decisions to guide their study design.

Solution

The study team began looking at available data early on, when the trial was just in the concept phase. They elected to start by using vendor-sourced electronic health record (EHR) data for feasibility and to understand the clinical attributes and profile of the eligible cohort. The EHR platform they used included a real-time analytic capability to query the data and quickly visualize descriptive summaries of the population. These EHRs mostly came from the United States, which the team found to be a sufficient, although not ideal, starting point to guide decision-making for this global study.

To begin, the study team developed a list of negotiable and non-negotiable eligibility requirements. Then, they started asking questions they hoped EHRs could help answer. What is the treatment pathway for this disease and how can we use this information to inform decisions about eligibility criteria? What is the prevalence of the disease in older patients and do these patients have additional comorbidities? How can this information inform the upper age limit for the study? How would including or excluding concomitant or prior treatments impact the size of the eligible patient population?

The study team comprised individuals from across the development spectrum, from clinical research medical directors who could offer therapeutic area insight to operations and site management employees who understood study execution. The team analyzed the EHRs and extracted the data points they needed. It then utilized patient-level claims data for a deeper, more targeted analysis and assessment of patient characterization and developed an interactive visualization that enabled the team to assess the impact of different criteria. The visualization featured a list of criteria that could be toggled on or off, showing the impact of theoretical decisions in real time and helping the team choose

¹ Tufts University, ed., "Tufts Center for the Study of Drug Development Impact Report", January 2013.

the right combination of criteria. The critical stakeholders from the organization were at the table so the team could start making evidence-based decisions in real time while exploring various eligibility criteria options.

Outcomes

The study is now in its start-up phase, and the team says the inclusion of the RWD served as an important guidepost toward better-informed decisions. For example, prior to the data analysis, the study team planned on a stricter age criterion, which their EHR analysis quickly revealed would eliminate one-third of their patient population. After confirming from experts in the therapeutic area that there were no concerns about loosening that criterion, they did—and likely saved themselves significant time and cost, while generating a more representative outcome. The claims analysis also revealed that most patients had switched therapies within one or more classes of medications, which compelled the team to loosen their criteria for prior medication use.

The Big Picture

This sponsor supports implementing RWD to inform eligibility decisions more widely across their organization. However, the team also notes there is still work to be done to improve the process. Now that RWD is widely available, organizations need to prioritize data sources based on quality and assessment of critical gaps (such as the lack of global EHR data) in order to reap the full potential these data sources offer.

Success Factors

This sponsor's advice for others hoping to apply RWD to determine eligibility requirements:

- ▶ *Timing* – Plan and conduct your analysis at the concept phase of the study. This helped the team set the protocol up for success early on, which saved time and hassle down the road. At the same time, the team urges, have a basic framework in place prior to examining the data. Without high-level eligibility criteria and basic endpoints in mind, the analysis would lack focus.
- ▶ *Visualizations* – Make the effort to develop a visualization of your RWD analysis. In a time crunch, the ability to see the impact of criteria changes in real time helps everyone on the team (even the non-data-oriented people) make good decisions, fast.
- ▶ *Know Your Data* – It is helpful to have someone on your team who understands the limitations of the RWD you are assessing so the larger team can fully understand the context of the analysis. Is what you're seeing accurate, or do you need to dig deeper? Make sure you have someone on your team who knows.

This case study is part of CTTI's Recommendations on [Use of Real-World Data to Plan Eligibility](#)