The Impact of Real-World Data Studies on Drug Development

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The current process of drug development is on an unsustainable path forward. The system is inefficient, lengthy and costly. Despite the rising costs of R&D, failure rates are as high as 90% and the average time to market now takes approximately 12 years; companies are hard pressed to bring affordable drugs to market. It has become imperative to address these issues and implement innovations that could improve the process, reduce timelines, and ultimately improve market access.

Recognizing this as a major issue that the industry is facing, PAREXEL commissioned the Economist Intelligence Unit (EIU) to evaluate four existing clinical trial innovations – adaptive trials designs, patient-centric trials, precision medicine trials and trials that use real-world data (RWD) – to better understand how innovative approaches can influence the efficiency, productivity and sustainability of the drug development process and increase the likelihood of providing meaningful therapies to patients. The key findings of this research and analysis were presented in a report: ***The Innovation Imperative: The Future of Drug Development*.**

One of the key innovations this report focused on was real-world data trials, which were defined in the research as: Trials that include one or more measures of a therapy's impact in real-world settings, rather than just in the trial environment, and include both trials using existing data and those using digital health-monitoring devices. This article will examine how RWD trials can positively impact the drug-development process.

Overview: RWD Studies

RWD are data collected from various sources in routine care settings or outside of a typical clinical research setting such as a randomized clinical trial (RCT). In traditional use cases, RWD studies use existing information to inform what the patient characteristics and eligibility criteria should look like, as well as better describe treatment patterns. The study design also includes early emerging use cases such as those collecting new primary data in a real-world setting, and those using digital health-monitoring devices. RWD encompasses a wide range of data types and sources including: health records, claims and billing data, product and disease registries, survey data, and observational studies, as well as data gathered through personal devices and health applications such as social media and wearables. In recent years, the sources of RWD have expanded significantly due to digital technologies. There is also increasing recognition of the value and application of these data.

The EIU report identified RWD studies used in Phase II and III (referred to later as "clinical trials" to distinguish them from the broader array of clinical research studies commonly performed) as an innovative approach to improve drug development, efficiency and launch success. Even if RWD isn't used to generate real-world evidence (RWE) regarding product effectiveness, RWD can help with generating hypotheses for testing in RCTs, identifying potential biomarkers and assessing trial feasibility. The report also showed that drugs developed using RWD had a higher likelihood of launch (89%) across all therapy areas (neurology, oncology and rare diseases, which is a 21-point increase compared to drugs

developed without an innovative approach (68%). Additionally, RWD studies had some of the shortest times to recruit 100 participants – six months on average – compared to the average seven months.

Impact and underutilization of RWD

Despite the reported benefits of deploying RWD studies, the adoption rate is shockingly low in the clinical-trial setting. The EIU report identified four main barriers to adoption of innovative clinical trial designs such as RWD, including:

1. Vast, new and fragmented data
2. Limited or inadequately trained workforces
3. Negative perceptions of pharma's approach to innovation, not in the science of medicines and medical devices, but in the methods that are used to develop them
4. Cultural barriers surrounding drug development and innovation

Following the release of this report, PAREXEL has been working to overcome these barriers by fostering innovation in clinical-trial processes, and by continuing to drive forward and explore new ways of demonstrating the value that these innovations can bring to the drug development process. Additional approaches to overcoming these barriers include encouraging collaboration to connect people, removing data silos and working more seamlessly across a company, as well as engaging in multi-stakeholder initiatives, and bringing the best minds together to improve the drug development process.

Clinical trials that incorporate real-world data aren't very common at all. In fact, in the thousands of studies examined in the Innovation Imperative report, they made up less than 1%. This is primarily related to the fact that RWD are more-commonly accessed after a product is on the market, rather than in Phase II or III. For example, looking specifically at Phase IV studies, there is a much higher adoption rate of RWD in studies, as these data are more widely available post-approval and stakeholders increasingly require longer-term safety and effectiveness information that can only be found in the real-world. Recently, in fact, regulators and payers are more-often today looking to RWD to support regulatory or market-access decisions.

Supporting greater implementation in high-quality RWD

Today, legislation and policymakers are actively engaging in the dialogue on the value of RWD in the development of medicines and medical devices. Since the 21st Century Cures Act passed in 2016, we have seen significant changes that are helping to evolve the RWD and real-world evidence (RWE) landscape. The Act mandated, for the first time, that the FDA develop, within five years, specific guidelines on the use of RWE to support regulatory decision making, including changes to labeling, such as adding or modifying an indication, adding a new population, or adding comparative effectiveness or safety information. This was a critical step forward in our ability to apply an understanding of real-world patient care and outcomes to the drug-approval process. EMA has similarly convened an initiative including industry forums and working groups to develop its position on acceptability of RWD. In the Asia Pacific region, the interest in leveraging RWD in clinical research has tripled over the past 12 months.

Most recently, in December 2018 the FDA released their Framework for assessing RWE, describing the path they'll follow toward developing critical guidance around how RWE will be utilized in the U.S. regulatory setting. The draft guidance builds on earlier CDRH guidance on RWE and a RWD-relate

guidance published in the middle of 2018 around the use of electronic medical record data for regulatory decision-making, providing recommendations on the capture, review and retention of source data as well as recordkeeping, informed consent and system access in a regulated investigation. While our experience as an industry, regulatory bodies, pharma, CROs, technology providers and data holders together, is still too early to be able to support definitive regulation, the guidance is powerful in indicating what is critical and helping companies know where to make investments in process and capability. It is incumbent on industry to share the experience forming openly with the FDA to help determine how best to apply the principles of GCP and related standards in this new environment.

RWD studies hold significant promise for the innovation of drug development. Real-world data studies have revealed a positive impact on study time, recruitment and market access. It has showed that drugs developed using this innovative trial method took less time to recruit participants, were more likely to be launched, and are adopted by payers more quickly. As regulatory bodies continue issuing guidance to better understand how to leverage RWD and RWE, engagement with regulators, payers and patients is initiated earlier, and the workforce is trained to manage and interpret complex RWD models, a paradigm shift towards greater acceptance and use of this innovation in drug development is expected.

**Editor's note: This the third article in a series of four. Learn more about the positive impact of patient-centric clinical trials and adaptive trial designs as uncovered in The Innovation Imperative: The Future of drug development. To view the full report, visit: druginnovation.eiu.com.*