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ePRO Systems Validation: Clearly Defining the Roles of Clinical Trial Teams and ePRO System Providers

The emergence of technologies that enable the direct electronic capture of patient-reported outcome (PRO) data has been a profoundly significant innovation in PRO endpoint assessment in clinical trials. Based on evidence that has been mounting over the past 20 years, paper-based self-reports of measurements (e.g., peak flow values) and experiences or sensations (e.g., symptoms) are far from optimal compared with data collected electronically [1,2]. As stated by Ganser et al., paper-based approaches to patient-reported data collection can “result in untimely, unreadable, missing, illogical or otherwise faulty data” [3]. In contrast, electronic data collection systems can lead to more accurate and complete data, avoidance of secondary data entry errors, easier implementation of skip patterns, less administrative burden, and potential cost savings [2,4–11].

The accelerating transition from paper diaries and questionnaires to electronic PRO (ePRO) systems for PRO data collection has enhanced the integrity and accuracy of data collected in clinical trials [3]. This transition, along with the US Food and Drug Administration (FDA) guidance for industry titled “Patient-Reported Outcome Measures: Use in Medical Product Development to Support Labeling Claims,” [12] has truly elevated the science of PRO measurement. Scientifically sound measurement is essential because of the significant role PRO end points play in regulatory decision making. As evidence of this significant role, Gnanasakthy et al. found that of the 116 new molecular entities and biologic license applications approved by the FDA from January 2006 through December 2010, 28 (24%) were granted PRO-based label claims [13]. Of these 28 products, 20 (71%) used a PRO as a primary clinical trial efficacy end point. Two more recent FDA approvals, Incyte’s Jakafi (ruxolitinib) and Insys Therapeutics’s Subsys (fentanyl sublingual spray), have PRO-based label claims supported by data collected on ePRO systems (i.e., eDiaries) [11]. However, the development and deployment of ePRO systems in clinical trials is far from a trivial task.

In this issue of *Value in Health*, the ISPOR ePRO Systems Validation Task Force provides its recommendation for clinical trial teams regarding the validation of electronic systems used to collect PRO data in clinical trials [14]. The backgrounds and experience of the task force members, including representatives from clinical trial sponsors (i.e., pharmaceutical firms), ePRO system providers, and clinical/contract research organizations, were crucial in making this report both credible and practical. The primary goal of the task force report was to provide insight into the technical nature of ePRO systems and the multiple steps in the ePRO system validation process. As the report makes clear in describing the essential components of the process, ePRO system validation requires a partnership between the clinical trial team and the ePRO system provider. The mutually shared

goal is to collect high-quality data; each stakeholder has a substantive and complementary role to play in the ePRO system validation process. Therefore, a collaborative approach with open, effective lines of communication is essential to avoid the avoidable and efficiently answer any questions or resolve any challenges that emerge along the way.

Along with the specific recommendations provided, a major contribution of this task force report is to illuminate the entirety of the extensive and methodical process that must be completed before an ePRO system is ready for successful deployment in a clinical trial. Although some of these system validation activities are invisible to the sponsor’s clinical trial team, it is important for the team to have an understanding of what is taking place behind the scenes. Prior to reading this report, I lacked a full appreciation of all that is required; I suspect other readers will feel the same.

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