Editorial

Value of new clinical research methods post-pandemic

Because of the pandemic, researchers have been forced into operationalizing clinical trials without jeopardizing scientific integrity while also keeping public health as a priority. These methods should be adopted post-pandemic, they are more efficient than prior systems for clinical trials and could potentially hasten medical advancement.

The protocols under which clinical trials were run before the pandemic were expensive and time-consuming. The average cost of a clinical trial ranges from $12m to $33m, with costs increasing further if: more patients are needed to document treatment benefit; active drug comparators are necessary; or clinical endpoints are measured rather than a change in a surrogate outcome. Significant savings can be made by using prior data for control groups or retroactive data on the original drug in non-inferiority studies (Moore *et al.*, 2018).

While the pandemic has forced scientists into finding ways to operate remotely, many pragmatic and cost-effective means have been innovated to adapt. These innovations have removed the need for travel and clinic space, allowed for recruitment to happen across larger distances and reduced the costs for physical space and labor (Gelfand and Hefele, 2020). Endpoints can now be collected by physicians through telemedicine, removing travel and clinic space. Further, telemedicine permits recruitment of patients across distances, including rural populations. Formulation of remote operations reduce costs for physical space and labor; a patient can read informed consent forms on their own time and later review them with staff versus patients having to go to a trial site, be given the form and read it over with a coordinator nearby. By having a greater reliance on standard of care visits for clinical trial administration, there would be less cost to both patient and trial-runners, as there would be fewer dedicated doctor visits for the trial.

Clinical trial designs have also improved because of the pandemic. More efficient methods of data collection (Hartman *et al.*, 2020) permits researchers with common protocols to compare findings, thus decreasing unneeded costs. Researchers are also able to use biostatistical determination of minimum necessary sample size and less restrictive inclusion criteria to ease recruitment. Finally, using remote administration to centralize research coordination into fewer sites increases efficiency and removes redundancies of cost in trials.

Caution should be practiced while adopting these novel methods to conduct research in the post pandemic era. Patients who are technologically illiterate, have poor medical literacy or are cognitively impaired can be disenfranchized with the process rendering these studies selective and perhaps exclusive. Other difficulties include developing rapport with patients, online access for both parties and getting caregivers to accept lab administration by third party companies (Weinberg *et al.*, 2020). The scientific community should view these deficiencies as opportunities to innovate novel system solutions. In short, the clinical trial techniques that scientists have developed during the pandemic should be adopted long-term owing to their efficacy, cost-effectiveness and potential to speed scientific advancement.

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