

## COMMENTARIES



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## Leveraging technology in academic healthcare research

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### Abstract

Technology is continuously evolving, and adopting the technology in research, especially in data management, is of utmost required. In India, researchers in most medical schools still rely on paper-based data collection methods for their academic research. Many times, it results in loss of data or errors at the end of the study. A handful of studies suggest that EDC systems can accelerate clinical studies, reduce the overall duration, and reduce data errors. Considering all these benefits, wider adoption of the technology in clinical studies is required among Indian researchers.

**Keywords:** EDC; Academic Research; eCRF

### Dear Editor

Data management is a pivotal part of any research as it directly impacts the study outcome. If anything goes wrong, particularly in this stage, it uproots the entire study, resulting in time, money, and energy loss. So, high-quality data collection and data management is of utmost required for clinicians, researchers, and study sponsors for the successful completion of the study by understanding the clear outcome of the study.<sup>(1)</sup>

Conventionally, in academic research, the normal method of data capture includes two steps. Data is collected using paper-based case report forms (CRFs) or Proforma in the first step and data is manually entered into MS Excel from paper-based CRFs or Proformas for the purpose of data analysis in the second step. In terms of data accuracy and timeliness,

this paper-based data collection approach is inefficient. The introduction of mobile electronic devices has opened new possibilities for data collection in clinical and research settings. The alternative to the standard data capture method is the electronic data capture (EDC) method, in which data is directly entered into electronic databases using electronic CRFs. Lot of reported studies suggests that data collected via electronic methods may be more accurate and contain fewer errors compared to conventional methods.<sup>(2,3)</sup> Using a mobile application to record significant amounts of data produced in research is adequate to optimize the steps of data organization and processing, favours data flow management, and offers security and quick data availability, contributing to study development and analysis of results.

EDC showed greater advantages compared to paper-based collection by enabling large volumes of data collection and storing data securely by encrypting on cloud servers. This avoids the need of carrying and archiving cumbersome paperwork. The major advantage of EDC would be the ability to enter, review and analyze data in real-time on different sites. Also, EDC enables the implementation of data validation checks to assure quality of data more effectively at the point of data entry, which reduces the chance of human error and the decrease the necessary time for data entry and cleaning following the data collection phase of a study.<sup>(4–6)</sup>

Technology is continuously evolving, and adopting the technology in research, especially in data management, is of utmost required. In India, researchers in most medical schools still rely on paper-based data collection methods for their academic research. Many times, it results in loss of data or errors at the end of the study. A handful of studies suggest that EDC systems can accelerate clinical studies, reduce the overall duration, and reduce data errors.<sup>(7,8)</sup> Considering all these benefits, wider adoption of the technology in clinical studies is required among Indian researchers.

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