EDITORIAL

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Opportunities and challenges of real-time data in medicine

"Big data" is a popular concept, and such data are not difficult to collect in China. However, it is difficult to extract valuable information from big data and even more difficult to utilize real-time big data to obtain information.

Taking the Children's Nation Medical Center as an example in this article,[1] Bhattarai elucidates the drawbacks of using lagged data in guiding clinical practice and the clinical value of using real-time data. Analyses based on existing (lagged) or real-time data have their own strengths and weaknesses. Lagged data are often relatively perfect after being processed, but their use may result in the missing of key opportunities. Although real-time data can immediately reflect the current situation, they are still less than perfect. In some cases, however, these imperfect real-time data are essential. This is true among patients in the pediatric intensive care unit, for whom analysis and prediction based on lagged data alone often lead to loss of the best chance for rescue. However, analysis based on real-time data is also associated with many challenges. First, analyses based on real-time data require more resources because real-time data are obtained as a stream, no ready-made data are available, and the analysis equipment and methods are different from those of traditional static data. Second, real-time data are dynamic: some of them are not saved, and others are only stored for a certain period of time. Once errors have been introduced into the transmission of these data, the results can be easily biased.

Nevertheless, any real-time data-based analysis that can offer timely guidance for disease prognosis will be essential for life-saving treatment. Researchers in many fields, including the medical field, have studied the capture, utilization, and analysis of real-time data, which is a good sign of medical progress.[2,3] Real-time data-based analysis might become a key future direction in hospital informatization.

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CONFLICT OF INTEREST

I have no conflicts of interest to declare.

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