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Short Communication

Harnessing data science in healthcare in the era of evidence-based medicine

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Abstract

In an article published in the journal Science, a group of scholars claimed that after Newton's motion law, the experimental research and the computer simulation paradigms, data science and the techniques that generate knowledge from data should be considered the fourth research paradigm. With the huge advancement in the information technology and computer science, our ability to generate and store data has increased phenomenally, significantly diminishing the traditional data processing and information extraction capabilities. The growing capabilities of handling large datasets, there are unprecedented research opportunities that may change the face of care delivery. However, despite the massive quantities of data accumulating from patient records, and the rise of the health information technology and health informatics, the potential benefits of the data science in the healthcare industry have not yet been realized. This triggers the obvious question "why?". To answer this question, it is important to analyze the literature to ascertain challenges and gaps that lead to this problem. Reviewing the literature, the reason of the poor adoption of the data science in healthcare is multifactorial. The lack of empirical evidence that data science can help healthcare organizations achieve the economic and the wellbeing value-added, the poor awareness among the practitioners and healthcare executives of data science potentials in supporting the clinical and the managerial decision making and the complex technical language that is profound in data science publications are among the key factors. Furthermore, in spite of the fact that the knowledge creation and the clinical decision making in the healthcare industry are dominated by the evidence-based medicine (EBM) paradigm since the last two decades, the literature that attempts to promote data science for healthcare industry doesn't provide a pragmatic framework that describes how data science can influence the clinical practice and the clinical decision making in the era of evidence-based medicine.

This presentation will propose a reconciliation framework that help integrate data science analytics with the evidence-based paradigm. It will also attempt to demonstrate the power of data science techniques (e.g. data mining and machine learning) in supporting the clinical and the managerial decision making, in enhancing disease prevention through the remarkable predictive power, and in optimizing the business operations through the innovative analytical methods that help better understand and visualize the data.

Biography

Ahmad Abujaber is a Jordanian registered nurse. Ahmad works currently as an assistant executive director of nursing at Hamad Medical Corporation- Qatar. Ahmad has a bachelor's degree in nursing and a degree in business administration. He is also doing a PhD in business administration with an interest in data science and business intelligence. His research interest is in the disease prevention through the deployment of predictive analytics.

Ahmad has a vast experience in emergency and trauma nursing in both Jordan and Qatar. He has special interest in professional trauma education being a regional director and coordinator for the ATLS® and ATCN® programs that are provided by the American College of Surgeons (ACS) and the Society of Trauma Nurses (STN).

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