

Ref No	Research paper	Authors	Findings
1	Health Big Data Analytics: A Technology Survey	Gaspard Harerimana, Beakcheol Jang, Jong Wook Kim	Because of the vast availability of data, there has been an additional focus on the health industry and an increasing number of studies that aim to leverage the data to improve healthcare have been conducted. Health data are growing increasingly large, and more complex, and its sources have increased tremendously to include computerized physician order entry, electronic medical records, clinical notes, medical images, cyber-physical systems, medical Internet of Things, genomic data, and clinical decision support systems. New types of data from sources like social network services and genomic data are used to build personalized healthcare systems, hence health data are obtained in various forms, from varied sources, contexts, and technologies, and their nature can impede a proper analysis. Any analytical research must overcome these obstacles to mine data and produce meaningful insights to save lives. In this paper, investigate the key challenges, data sources, techniques, technologies, as well as future directions in the field of big data analytics in healthcare. provided a do-it-yourself review that delivers a holistic, simplified and easily understandable view of various technologies that are used to develop an integrated health analytic application.
2	An overview of healthcare data analytics with applications to the COVID-19 pandemic	Zhe Fei, Yevgen Ryznik, Alex Sverdlov, Chee Wei Tan, Weng Kee Wong	In the era of big data, standard analysis tools may be inadequate for making inferences and there is a growing need for more efficient and innovative ways to collect, process, analyse and interpret massive and complex data. Provided an overview of challenges in big data problems and describe how innovative analytical methods, machine learning tools, and metaheuristics can tackle general healthcare problems with a focus on the current pandemic. In particular, Gave the applications of modern digital technology, statistical methods, data platforms, and data integration systems to improve the diagnosis and treatment of diseases in clinical research and novel epidemiologic tools to tackle infection source problems, such as finding Patient Zero in the spread of epidemics. Made the case that analysing and interpreting big data is a very challenging task that requires a multi-disciplinary effort to continuously create more effective methodologies and powerful tools to transfer data information into knowledge that enables informed decision-making.
3	Using Data Analytics to Improve Hospital Quality Performance	Pitocco, Christine Ph.D., Sexton, Thomas R. Ph.D., Stickle, Kelly	This was a performance model rather than an economic efficiency model, excluded costs, which are affected significantly by local economic conditions. Included four site characteristics. With our data envelopment analysis model structure, Used logistic regression to analyse the output. Extracted data for 2,233,214 discharges in 2014 from 183 hospitals in the state. Found that 20.8% of the facilities were on the quality performance frontier—20.6% of the not-for-profit facilities and 21.4% of the other facilities. This approach to the measurement of hospital quality performance defines a quality hospital visit as one in which the patient is discharged alive after a reasonable period and does not need to return. Showed how to use DEA to evaluate a hospital's quality performance based on these three measures while controlling for factors that are beyond the hospital's control. Pointed out that ours is a quality performance model, not a technical efficiency model, which excludes costs and other resources and concluded that considerable performance improvement is possible in some NYS hospitals.

4	Large Scale Infrastructure for Health Data Analytics	Samantha Crossfield, Owen Johnson, Thomas Fleming	The opportunities for data analytics to inform the science and practice of health care are growing. For example, in the UK, 65 million citizens have lifelong e-health records that can be used to examine patterns of disease, treatment, and outcomes. Similarly, the real-world impact of interventions such as new drugs can be evaluated in these records. Such approaches need to solve issues around information governance, confidentiality, understanding data and provenance, and developing methods for big data. Here this describes a large-scale service that addresses the opportunities brought by the availability of large-scale e-health records. The service has been used to support 50 research projects in the UK across a wide range of scientific areas and can be seen as an exemplar for the developing field of health data analytics.
5	A Systematic Review on Healthcare Analytics: Application and Theoretical Perspective of Data Mining	S.Siva Parvathy M.Bhuvaneswri	The growing healthcare industry is generating a large volume of useful data on patient demographics, treatment plans, payment, and insurance coverage—attracting the attention of clinicians and scientists alike. In recent years, a number of peer-reviewed article real-time dressed different dimensions of data mining applications in healthcare. However, the lack of a comprehensive and systematic narrative motivated us to construct a literature review on this topic. In this paper, Presented a review of the literature on healthcare analytics using data mining and big data. Following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and conducted a database search between 2005 and 2016. Critical elements of the selected studies—healthcare sub-areas, data mining techniques, types of analytics, data, and data sources—were extracted to provide a systematic view of development in this field and possible future directions. Found that the existing literature mostly examines analytics in clinical and administrative decision-making. The use of human-generated data is predominant considering the wide adoption of Electronic Medical records in clinical care. However, analytics based on website and social media data has been increasing in recent years. The lack of prescriptive analytics in practice and the integration of domain expert knowledge in the decision-making process emphasizes the necessity of future research.