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ANALYTICS FOR HOSPITAL HEALTH CARE DATA

ABSTRACT

The advancement of digital technology has an impact on Indonesian healthcare facilities, one of which is the digitization of medical records. This will result in a large amount of clinical data being generated from various sources, including electronic medical records. As a result, a large infrastructure is required to store data from various sources, which can then be aggregated and processed into information. The Health Information Analytics Dashboard provides accurate, complete, and real-time insight from big data in healthcare. Data is collected from various sources in Indonesian health care facilities that are integrated into the system. The analytic dashboard, which has a user-friendly interface, can be used to generate monitoring reports with a single click. A large sample size is utilised in this study. This study employs big data analytics as its methodology. The data analysis results are visualised using display charts/graphs to help users understand the data analysis results and interpretation. This dashboard is useful for facilitating decision making so that stakeholders can find out more quickly and respond appropriately, as well as improving the quality of health services to improve the degree of public health.

Keywords: Health Information, Analytics Dashboard, Big Data Analytics

INTRODUCTION

In the latest global health index, according to the 2019 report of The Legatum Prosperity Index, Indonesia is 97th out of 167 countries. The index is based on physical, mental health, health infrastructure and care to prevent various outbreaks or diseases. Based on comparisons from 2017, Indonesia experienced an increase from 101 in 149 countries. This increase can be triggered by improving the quality of health facilities in Indonesia which are getting better. Based on the Minister of Health Regulation No. 71 of 2013, health facilities are health service facilities that are used to carry out individual health service efforts, both promotive, preventive, curative and rehabilitative carried out by the Government, Regional Governments, and/or Communities. In health facilities, each health professional is responsible for various types of information, both medical and administrative information. With the development of digital technology, health facilities in Indonesia began to adopt the digitization of medical records. The digitization has begun to be implemented in all units, from inpatient, outpatient, emergency, laboratory, coding, disease, ling, distribution, assembling, nancial, guarantee, insurance, and other units.

Increased adoption of electronic health records in recent years has substantially increased the amount of readily accessible digital data for use in clinical and business decision making; however, the current methodologies used for database analysis in healthcare have been innocent. Data is being created around us at an increased rate, in a multitude of forms and types. Most of the advances in all the scientific disciplines that have occurred over the last decade have been based on the extraction, management and assessment of information to provide cutting-edge intelligence. This, in turn, has accelerated the need, as well as the production of large amounts of data, otherwise referred to as big data. Due to the diverse nature of big data, there is a constant need to develop, test and apply theoretical concepts, techniques and tools, to successfully combine multidisciplinary approaches to address such a challenge. As such, theory is continuously evolving to provide the necessary tools to enable the extraction of relevant and accurate information, to facilitate a fuller management and assessment of big data. The data needs to be collected, cleaned, curated and stored in a way that information retrieval and analysis for business intelligence becomes easy. Therefore, in health facilities that have adopted digitization of medical records, a large data infrastructure is needed to store data from various sources so that it can facilitate the process of data aggregation to then be processed into information.

LITERATURE REVIEW

To improve patient experience and organisational performance, healthcare organisations look for appropriate technology to streamline resources (Tang et al. 2019; Wang, Kung, and Byrd 2018; Tandon et al. 2020). According to Boudhir, Ben Ahmed, and Soumaya (2017), Zhang, Simon, and Yu (2017), healthcare can be thought of as a system made up of three main components: (a) core providers of medical care services, such as doctors, nurses, technicians, and hospital administrations; (b) crucial services related to medical care services, such as medical research and health insurance; and (c) beneficial services. According to this study's findings (George, Chacko, and Kurien 2019; Kaur, Sharma, and Mittal 2018), a healthcare system incorporates contact-based and technologically-based remote monitoring services provided by constituency service providers to promote, maintain, or recover beneficiaries' health. Big data analytics (BDA) has significantly impacted a range of healthcare tasks, including clinical decision support, illness surveillance, and health management, among others (Gu et al. 2017; Sáez and Garca-Gómez 2018). (Raghupathi and Raghupathi 2014).

Indonesia ranks 97th out of 167 nations on the most recent global health index, according to The Legatum Prosperity Index's 2019 report. The measure is based on factors like physical and emotional well-being, access to care, and efforts to stop illness epidemics. According to comparisons from 2017, there was a rise in Indonesia from 101 in 149 nations . The improvement of Indonesia's health facilities, which are getting better, may be the cause of this increase.

Health facilities are defined as "health service facilities utilised to carry out individual health service endeavours, both promotive, preventative, curative and rehabilitative carried out by the Government, Regional Governments and/or Communities" under Minister of Health Regulation No. 71 of 2013. Each healthcare worker in a facility is in charge of several kinds of data, including medical and administrative data. Health facilities in Indonesia started to digitise medical records as a result of the advancement of digital technology. All units—including inpatient, outpatient, emergency, laboratory, coding, disease, ling, distribution, assembly, financial, guarantee, insurance, and other units—have started to implement digitization.

The amount of digital data that is easily accessible for use in clinical and corporate decision making has significantly expanded in recent years as a result of increased use of electronic health records, yet the existing approaches employed for database analysis in healthcare are ineffective. Around us, data is being produced in a wide range of formats and types at an accelerated rate. The extraction, administration, and appraisal of information to produce cutting-edge intelligence has served as the foundation for the majority of scientific advancements during the past ten years across all disciplines. This has led to an increase in both the need for and the production of big data, or massive volumes of data.

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