Data Integration for Multi-Platform Health Registries

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ABSTRACT

This article has profoundly evaluated the phenomena of data integration in health registries. It has been demonstrated that advanced and authentic data integration procedure has a significant influence in facilitating the seamless integration of information in the multi-platform health registries in adherence to the regulatory standards. Such solutions ultimately help to improve potential healthcare outcomes and empower healthcare settings to deliver transparent and improved healthcare services.

Keywords: Data Integration, Health Registries, Patient Care, Healthcare

1. INTRODUCTION

In the rapidly evolving operational activities in the healthcare industry, it has been highly important to meet regulatory requirements for the purpose of integrating data in effective patient care support. In the health registries, the main challenges for submitting fragmented data revolve around various aspects including inconsistency in integrating data, issues on compliance, and assessing authentic data related to healthcare. With rising concerns about data integration in multi-platform health registries, various organizations within the global healthcare industry have focused on adopting automated integration procedures. This current study has emphasized on significance of data integration in multi-platform health registries and effective resolutions to increasing challenges of data submission in alignment with the real-world scenario.

2. BACKGROUND

Submission of real-time information on the health condition of patients, the treatment, and the overall outcome of Health Services is a systematic process, and data integration in health registries has broader implications for the business operations of healthcare industries. Additionally collected data from health registries provide valuable insights on the health care outcomes to the policy makers and academicians [2]. The systematic data that are particularly included in health registries significantly help to assess the quality of health care Services and it develops overall patient outcomes by working on
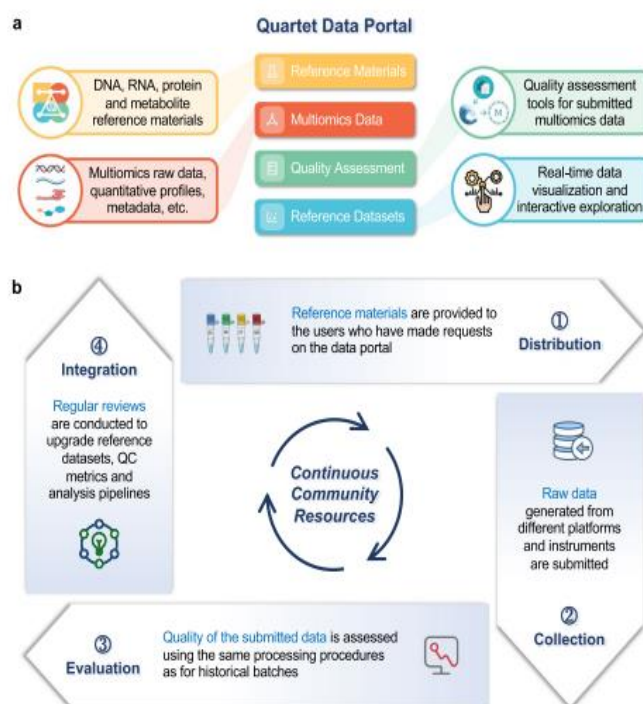
Figure 1: Submission of fragmented data in health registries [5]

Developing effective resolutions to improve outcomes in the health care settings. In many cases, it is observed fragmented data submission complexities from many unauthentic sources. Therefore, inconsistent data support makes it complicated to identify the issues of the patients and implement effective interventions for their identified concerns [6]. It has been reported that fragmented data in the multi-platform health registries create hindrances towards improving the quality of healthcare services. In order to mitigate such issues, it is highly important to leverage the automatic data integration process in adherence to the regulatory standards for promoting robust and effective streamlined submissions of authentic and real-time data in the multi-platform health registries.

3. PROBLEM STATEMENT

In the systematic data integration process fragmented data makes it more complicated to understand the reality of
 health care outcomes. Various challenges are associated with data submission including inconsistency in collecting data from multiple platforms that ultimately leads to developing variations in terms of submitted data format. Data duplication is one of the challenging issues in the storage systems and it can also be particularly characterised with identification of identical copies from different data sources. The main issues of data duplication in the healthcare settings is that such valuable duplicate data can be targeted by the cybercriminals that can ultimately develop risk factors on the organizational values. Additionally, compliance issues can also be identified when data are collected and submitted from diverse sources. Many times, fragmented data which are submitted in the health registries do not properly adhere to regulatory standards [5].

Additionally, employees in the health care settings encounter administrative burdens for entry of fragmented data in the multi-platform health registries, and such submitted fragmented data are prone to a high number of errors. Inconsistencies in data format can ultimately lead to challenging situations for delay in services. Besides it becomes challenging for health care organizations to submit fragmented data without meeting the requirements of reporting healthcare data.

4. ANALYSIS

a.   *Advantages in leveraging automated systematic data submission*

Considering the increasing challenges of submitting healthcare data in multi-platform health registries automated data integration process can play a pivotal role. Generally, an adaptation of automated data integration processes can largely help to reduce discrepancies and it also produces systematic and standard data format in submitting real-time data. Most integrated automated processes significantly help towards enhancing organizational efficiency in the health care settings and profile ultimate patient care support [3]. In addition, automated data integration procedures are designed with unique features in adherence to the regulatory framework that significantly works to minimize the risk factors of integrating fragmented data. Leveraging machine learning (ML) and artificial intelligence (AI) has broader future implication in the process of managing health records and health registries. Mainly effective implementations of Artificial intelligence have significant influence towards categorizing patients' data and generate predicting outcomes [3].
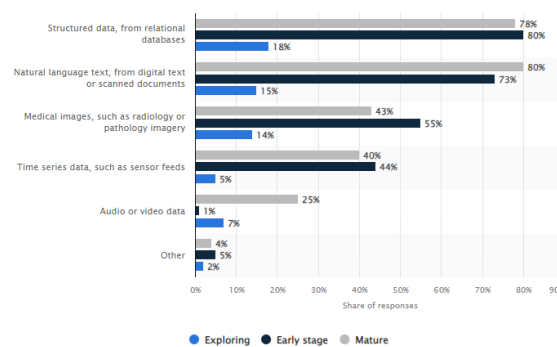

Figure 2: Application of AI models on health data worldwide [13]

This above figure portrays application of AI for managing relational databases in the healthcare settings. The responses of the majority participants stressed on the mature stage of AI application in the data management system facilitated by the healthcare settings [13].
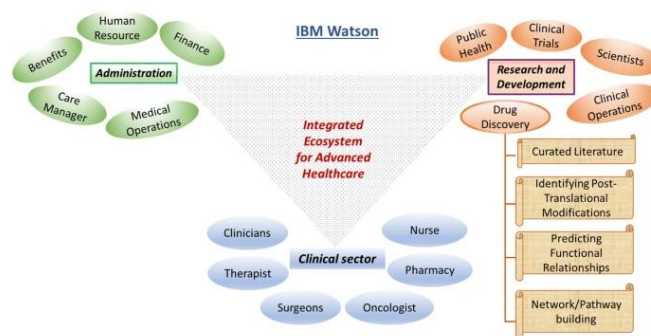

Figure 3: Schematic representation of healthcare data analytics [11]

Epic system is one of the effective tools for automated data submission in health registries; it particularly ensures flexibility among the employees associated in the health care settings as this tool significantly helps to reduce administrative burden to the employees [10]. In the data integration procedure Epic tool significantly helps data producers in identifying data of vulnerable groups and implement a comprehensive indicator framework in order to improve better care coordination and produce more improved health outcomes. In addition, this software makes it easier to develop comprehensive medical records in a systematic process. Additionally, experiencing more facilities allows for submitting high-quality personalized, and sensitive data to health registries.
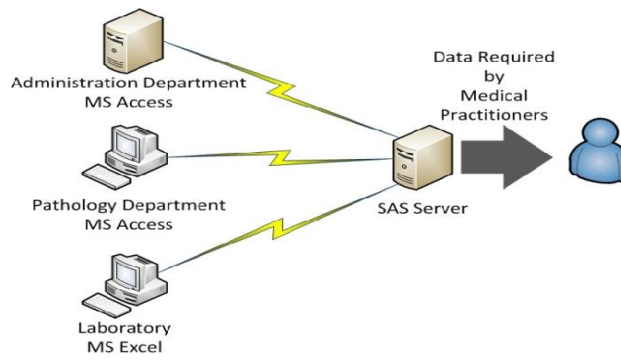
Figure 4: Integrating Fragmented Data Silos [9]

b.   Real-world cases integrating automatic data integration in health registries

Mount Sinai health system is one of the effective integrated health care systems that targets in providing exceptional health care services to the patients' app close the world. This health system has been designed with a view to enhance economies of skill and quality of health Services [8, 9]. It was reported that this renowned organization embraced automated data submission solutions from multi-platform health registries to produce error-free data and improve healthcare outcomes. The rationale behind integrating this data submission tool was to provide excellent responses to health health-related needs of patients from diverse populations.
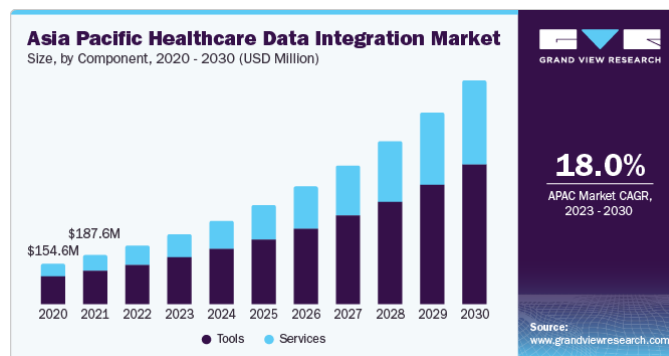

Figure 5: Asia pacific healthcare data integration market size [12]

Kaiser Permanente is one of the leading healthcare service providers in America. A unique business model is followed by this leading organization in order to provide a coordinated experience to the patients in the robust healthcare system. The integrated care model that has been facilitated by this living organization in America has provided effective and efficient care services to the patients. Kaiser Permanente organization has implemented a centralized platform for assessing data and utilizing automated data integration procedures in the multi-platform health registries in order to improve patient outcomes [7].

c.   Future directions in the process of data integration in multi-platform health registries

With the increasing demand for health care services, it has been highly challenging for healthcare organizations to improve healthcare outcomes based on the submitted data in health registries [4]. Therefore, it has been prioritised by many leading health care organisations in advancements of technology with a view to integrating data to produce effective healthcare outcomes. The introduction of modern technologies, machine learning, and generated AI in healthcare settings have significantly helped healthcare organizations to make effective decisions and predict trends toward improving patient outcomes.
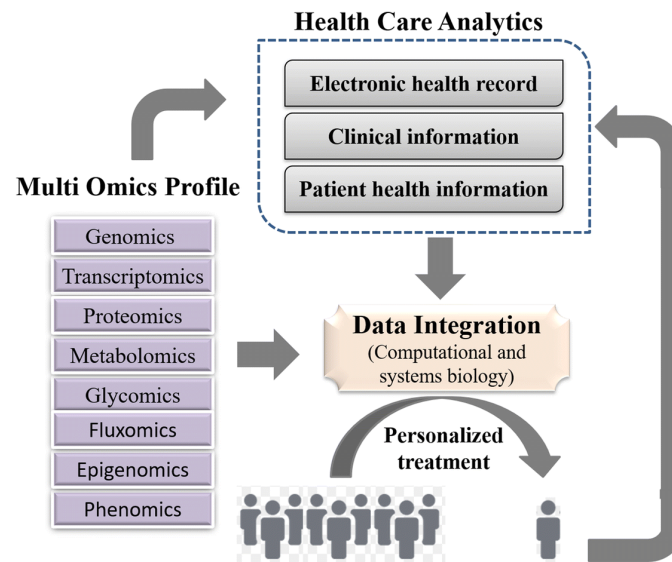
Figure 6: Framework for data integration for personalized treatment [11]

5. METHODLOGY

Some specific and highly effective strategies need to be implemented by healthcare organizations in the automated data integration process. Generally, it would be highly important to access systematic procedures of data submission to evaluate the area of improvement [1]. Mostly selection of effective integration tools can also be an effective approach for extracting data and transforming it into authentic data before submitting it to multi-platform health registries. Effective solutions can also be developed by engaging skilled IT teams and healthcare practitioners in the data collection process for submitting authentic data to health registries. Besides selection of the right integration tools can provide automated solutions for submitting streamlined data.

6. CONCLUSION

To conclude, in the modern age of technology healthcare organizations have witnessed flexibility in submitting authentic data in health registries. Various challenges are associated with integrated and fragmented data such as inconsistency to address relevant data from multiple sources and evaluate properly for improving healthcare outcomes.

It has been identified that some effective data integration strategies need to be implemented by healthcare organizations considering the evolving nature of the healthcare landscape in order to ensure a culture of consistent improvement of healthcare Services as analysis of fragmented data cannot produce effective outcomes in healthcare practices.

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